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10. UMTA-MA-06-0031-73,XII



ELECTROMAGNETIC ENVIRONMENT MEASUREMENTS
OF PRT SYSTEMS AT "TRANSPO®72"
VOLUME XII

Earl E. Jamison



JANUARY 1974

FINAL REPORT

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VIRGINIA 22151.

Prepared for
DEPARTMENT OF TRANSPORTATION
URBAN MASS TRANSPORTATION ADMINISTRATION
OFFICE OF RESEARCH, DEVELOPMENT AND DEMONSTRATIONS
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16. Abstract This report covers the measurements of the broadband conducted noise present on the A.C. power lines feeding the Personalized Rapid Transit (PRT) systems with all four systems operating simultaneously. The purpose of the measurement effort was to evaluate the electrical environment existing on each of the PRT "hot" and neutral A.C. power lines and to assess the effect if any, on each individual system with all of the other systems operating simultaneously. Each system is isolated from the main high voltage line by a stepdown transformer which should filter out most unwanted higher frequency spikes. The measurements obtained during this test will be used for a comparison with data obtained with no PRT systems operating and with each system operating individually.			
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PREFACE

The work described in this report was performed as part of a test program conducted to evaluate the Safety and Performance characteristics of the four Personalized Rapid Transit Systems (PRT) on display at Transpo[®] 72. Sponsored by the U.S. Department of Transportation, Transpo[®] 72 was the first United States International Transportation Exposition and was intended to demonstrate to the general public new technologies in transportation.

The PRT demonstration program was the responsibility of the Urban Mass Transportation Administration (UMTA) and was conducted to provide detailed engineering test data in addition to providing mature candidates for an Urban demonstration.

POWER LINE CONDUCTED NOISE MEASUREMENTS

PRT SYSTEMS - TRANSPO® '72

I. Introduction

This technical report presents the data obtained in the performance of tests for power line conducted noise at the Personal Rapid Transit (PRT) System at TRANSPO® '72 - Dulles Airport, Washington, D. C. This report covers the test defined as Item 6 of Contract No. DOT-TSC-375, and as performed by National Scientific Laboratories, Inc.

Item 6 calls for the performance of conducted noise measurements on PRT a.c. power lines in the frequency range from d.c. to at least 10 KHz, with all four PRT systems (TTI, Ford, Monocab, Dashaveyor) in operation. Data obtained at all four PRT sites will enable characterization of the noise increase attributable to the other systems operation, when considered in comparison with the operational noise data collected for each PRT system singularly and documented* previously by NSL.

* Technical Reports, Item 5 - TTI System; Ford System; Dashaveyor System; and Monocab System, August 1972, Contract No. DOT-TSC-375, Department of Transportation, Transportation Systems Center, 55 Broadway, Cambridge, Massachusetts 02142

The measurements reported in the document were made during the following time periods:

TTI System:	July 25, 1972 --1424 to 1618
Ford System:	August 2, 1972--1426 to 1615
Dashaveyor System:	July 31, 1972 --1537 to 1640
Monocab System:	July 27, 1972 --1414 to 1530

2. METHOD OF MEASUREMENT

2.1 Instruments

All measurements were made using the same test set-ups and instruments used during individual PRT system tests described in report Item 5. The power line conducted measurements were performed using a Fairchild Model EMC-10 Interface Analyzer. This is a battery-operated RFI/EMI instrument which covers the d.c. to 50 KHz frequency range as a narrow bandwidth receiver. It incorporates internal circuitry that provides a linear signal output to drive a chart recorder, and also a signal to produce frequency tracking for chart recording. A Hewlett Packard Model 3005B chart plotter was driven from the receiver.

Some observations were made at frequencies above 50 KHz through the use of a Hewlett Packard Model 8552/8553A spectrum analyzer. Data was recorded photographically with a Hewlett

Packard Model 198A oscilloscope camera. The analyzer is an extremely versatile instrument in that it has numerous frequency scan and bandwidth settings throughout the frequency spectrum of a few cycles up to 100 MHz.

Signals were obtained from the power lines by using a Fairchild Model PCL-10 Current Probe. This probe is a clamp-on transformer which provides an output voltage in proportion to the current which passes through its aperture.

A block diagram of the instrumentation is contained in Figure 1.

2.2 Power Line Arrangement

The TRANSP0 '72 PRT sites are each furnished with 15 Kv, 3 phase (Ø) power via underground feeder lines. This power passes through transformers to obtain site operational power of 480V, 3 phase. These lines enter commercial switchgear at the various PRT companies and are coded as follows:

TABLE I

POWER LINE CONDUCTORS CODES

<u>TTI SITE</u>	Phase:	A	Color:	Orange
		B		Brown
		C		Yellow
		Neutral		Noncoded

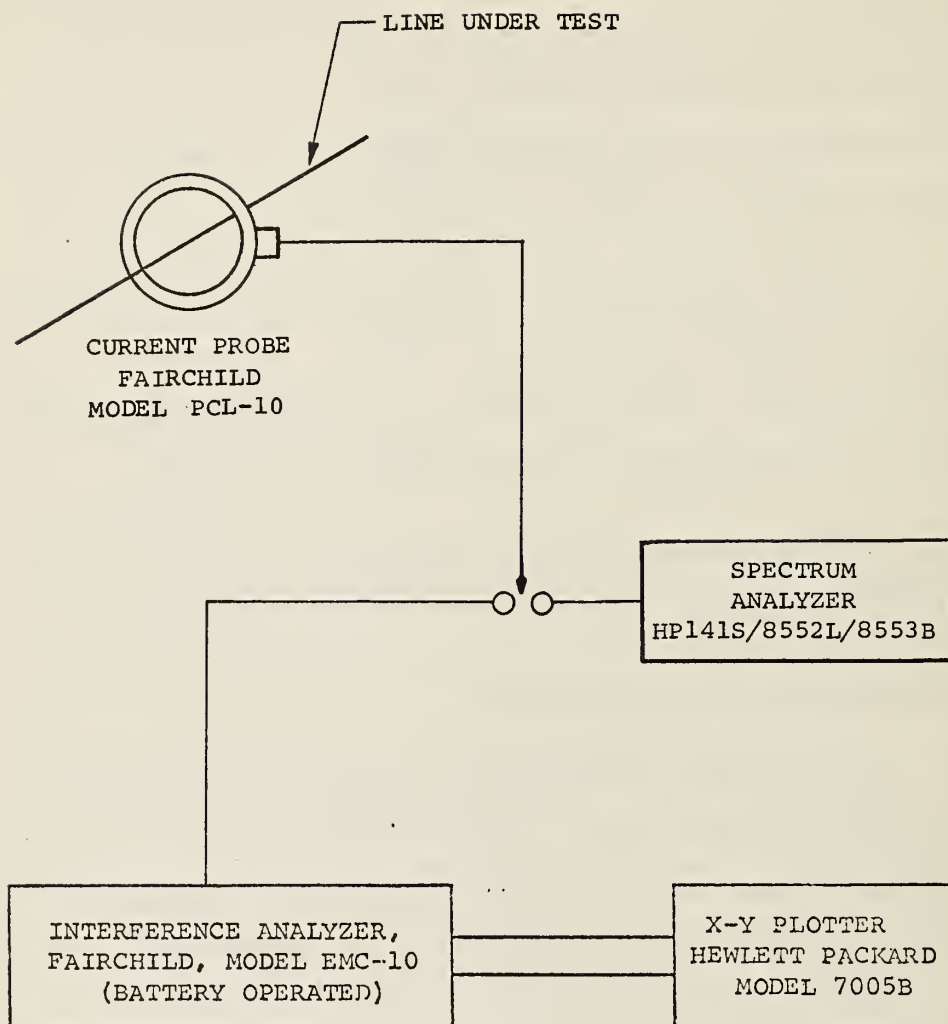


FIGURE 1. CONDUCTION TEST INSTRUMENTATION

TABLE I - Power Line Conductors Codes (Continued)

Ford Site	Phase:	A		Color:	Orange
		B			Brown
		C (Grounded)			Yellow
Dashaveyor Site	Phase:	A	NSL: 4	Color:	Orange
		B	3		Brown
		C	1		Yellow
		Neutral	2		Noncoded
Monocab Site	Phase:	A		Color:	Black
		B			Red
		C			Blue
		Neutral			White

The current probe was attached at the point where the power lines enter the commercial switchgear which is the same point as used when making the measurements described in reports Item 5. The locations of the PRT sites with respect to one-another are shown in the map in Figure 2.

2.3 Measurement Technique

Each of the power conductors (one conductor per phase per site) were tested by scanning two frequency ranges, d.c. to 1 KHz using a 5 Hz bandwidth, and 1 KHz to 50 KHz using a 50 Hz bandwidth. Two recordings were made for each frequency range, on each of the power lines. The scanning time per recording averaged four to six minutes.

LEGEND

- | | | |
|-----------------------|--------------------------------------|--------------------|
| 1 Parking Area 1 | 11 Exhibit Pavilion | 21 Terminal |
| 2 Parking Area 2 | Personal Rapid Transit System | 22 Office Building |
| 3 Parking Area 3 | 13 Rail Systems | 23 Hotel |
| 4 Parking Area 4 | 14 Outdoor Exhibits | 24 Lake |
| 5 Parking Area 5 | 15 Exhibitor Display Area | |
| 6 Parking Area 6 | 16 Water Related Exhibits | |
| 7 Parking Area 7 | 17 Cafeteria | |
| 8 Parking Area 8 | 18 Main Medical Facility | |
| 9 Main Entrance | 19 News Facility | |
| 10 Exhibitor Entrance | 20 Business Centers | |

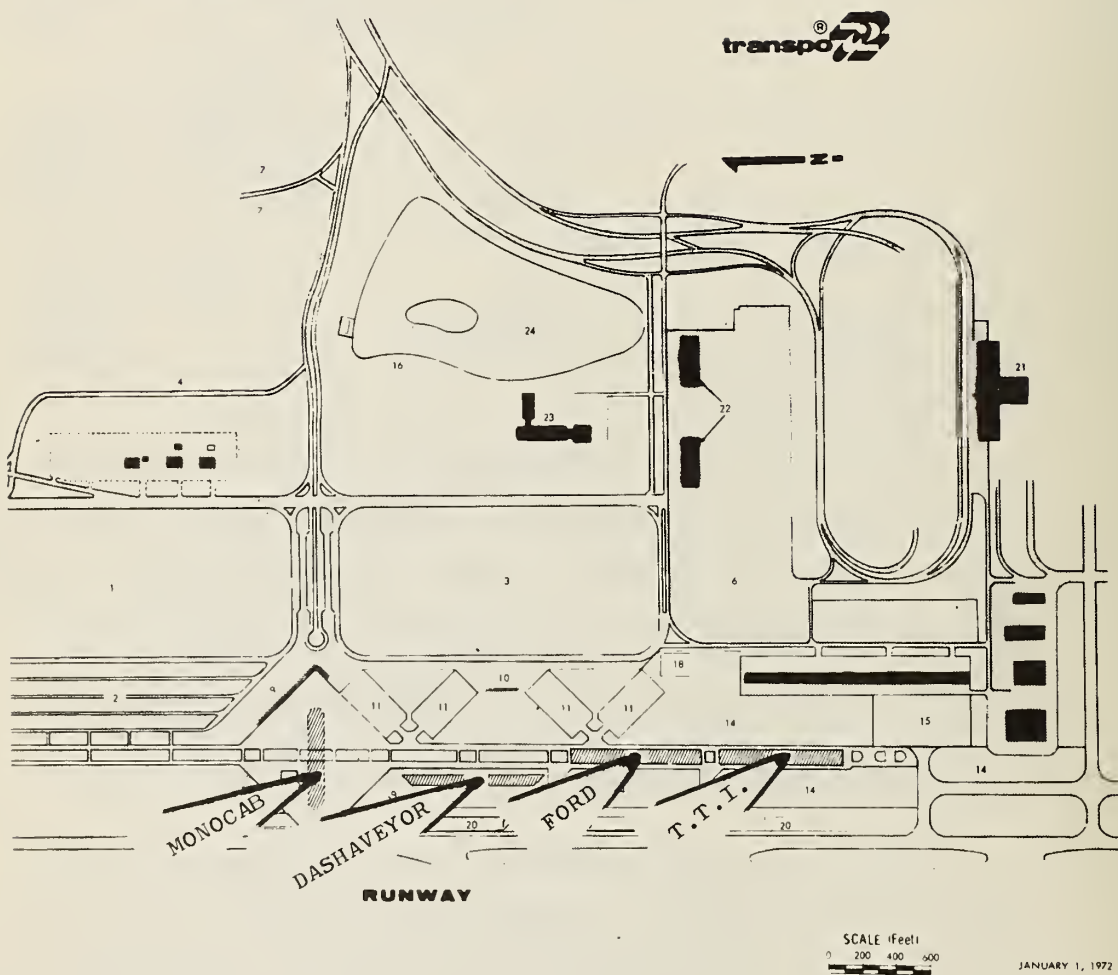


FIGURE 2. PRT SITES

The recordings are reproduced in the forepart of Appendices A, B, C and D for the four PRT sites. The recordings are presented in order of phase rather than the order in which they were produced. The upper charts are the reproductions, and the dB scale refers to the level at the instrument input connector. Some of the charts have two amplitude scales. The upside down letter "Y" located somewhere along the bottom line of the chart indicates the point of switchover from the scale on the left side to the scale on the right side.

The Spectrum Analyzer was used to record data at the Ford site in the frequency area of 150 KHz to 250 KHz wherein the vehicle and computer communicate. These spectrograms are in the latter part of Appendix B.

3.0 INTERPRETATION OF DATA

3.1 General

The amplitude/frequency charts produced during the tests at TTI are reproduced as the upper half of each page of Appendix A-2 through A-17; page B-2 through B-18 of Appendix B for the Ford site; page C-2 through C-17 of Appendix C for the Dashaveyor site; and page D-2 through D-17 of Appendix D for the Monocab site. The lower chart on each page is a plot of approximately one level in each major frequency increment of the chart directly above it. Peaks were selected whenever available. A correction

factor for the current probe (current probe amplitude response is non-linear with frequency) has been included in the levels plotted in the lower charts. The correction factors are presented in Figure 3.

In the upper charts, noise peaks recorded in the top major amplitude divisions are out of the calibrated range of the instrumentation system. Thus, the levels plotted for peaks that enter the upper divisions are given an amplitude of the highest level written numerically on the chart for that particular frequency.

Notations are written on the charts which denote vehicle movement, etc., which occur simultaneously with a noise peak.

The locations of the sites relative to one-another are included as Figure 2 of the report since it will be advantageous to know the adjacent companies in the event it is found that additional noise are observed over those recorded in the individual site tests. Further, it will be necessary to know where the feeder lines furnishing power to the sites are located in order to establish where the additional noises originate; the locations of these feeder lines is not known by NSL.

3.2 TTI Site

The recordings of power line conduction noise obtained at the TTI site, are contained in Appendix A. Notations are written on

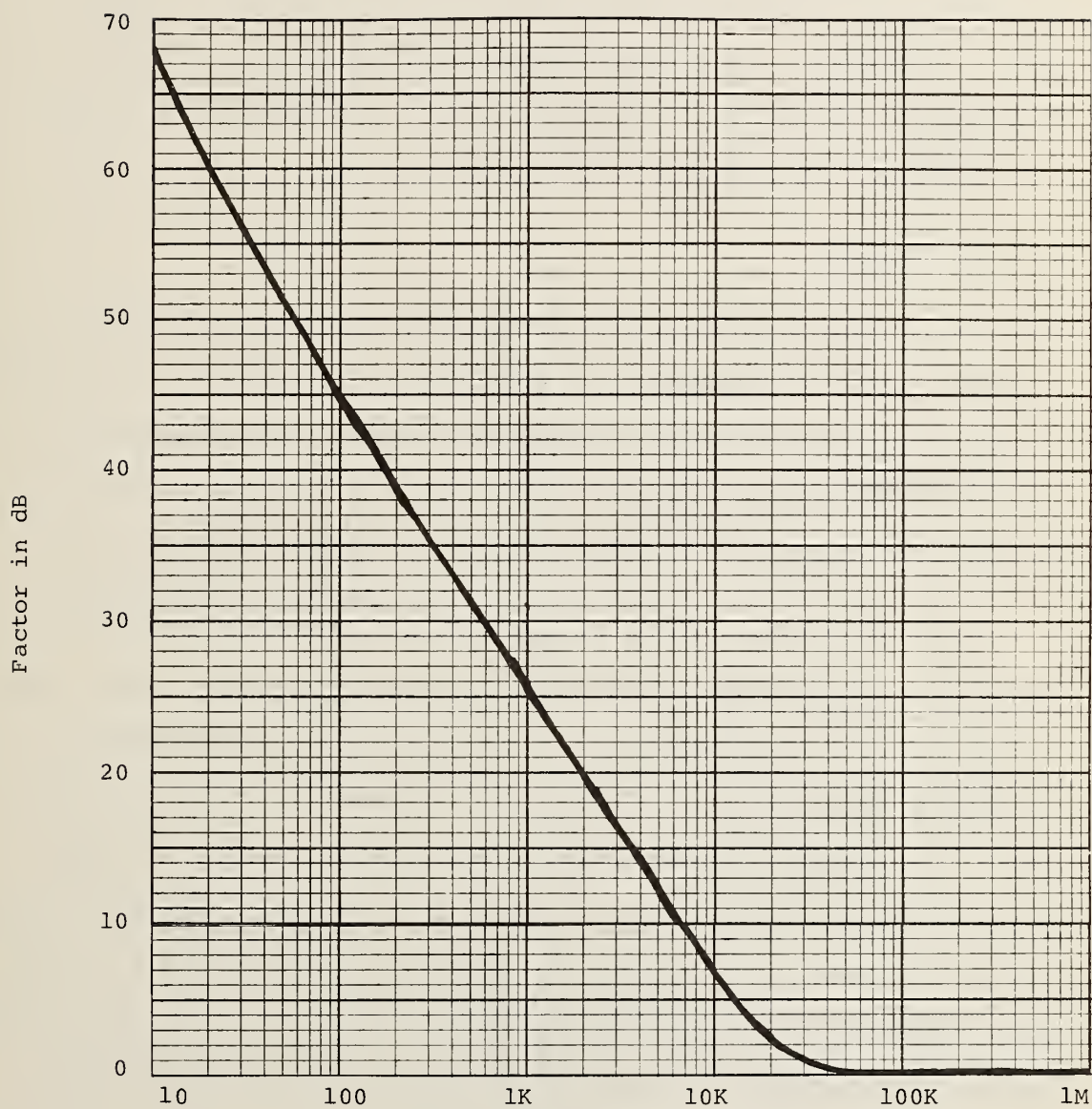


FIGURE 3. CURRENT PROBE CORRECTION FACTORS

the charts which denote vehicle movements occurring simultaneously with noise peaks. For the most part, the notations refer to docking and undocking operations at the station which were observed throughout the frequency range up to 50 KHz. Noises recorded during normal vehicle running on guideway were mostly in the frequency region below 20 KHz.

3.3 Ford Site

The recordings of power line conduction noise obtained at the Ford Site are contained in Appendix B. Notations are written on the charts which denote vehicle movements occurring simultaneously with noise peaks. Generally, this involved vehicle "stop" and "start" on the guideway as well as at the stations.

Test chart No. 457 on Page B-14 is a wideband (0-50 KHz) recording on power line conduction noise on line ØA. Thus, when reading from left to right bear in mind that it represents operational events within the total frequency band involved. Also, the pen was driven manually from left to right so that the time differences between events have no real time significance. There are numerous notations on the chart referenced to vehicle movement. An additional observation is that the vehicle requires more drive current travelling south than it does going north as is shown by the amplitude differences on the chart. Due to the non-linear response characteristic of the current probe, and the wide bandwidth employed, it is not possible to translate with precision to a reading of dB ref 1 microvolt. Therefore, the chart is given as referenced to receiver input.

The spectrograms on pages B-15 through B-18 show the conduction noise at frequencies up to 400 KHz. Presented is a sequence of vehicle travelling, slow down, and finally stopping. This is shown for the south and north going operation. Note the 150 KHz communication (control to vehicle) carrier on page B-17.

The spectrograms on page B-18 were made to show the noise present on the Ford power lines due to the other three PRT system operation. When making these recordings, the Ford system was completely shut down. The upper recording is the noise on ØB power line, the lower recording shows instrumentation signal input ambient.

The amplitude levels given for the spectrogram applies to frequencies above 50 KHz only. To determine the levels for frequencies below 50 KHz, the correction factor from figure 3 must be added to the levels on the spectrograms.

3.4 Dashaveyor Site

Notations are written on the charts which indicate instrumentation noise level, and an occasional guideway switch operation. No operations of the PRT system could be identified with the noise peak in the D.C. to 1 KHz frequency range. However, in the 1 KHz to 50 KHz frequency range, instrument noise and occasional noise spikes are present when no vehicles are running

as indicated in the charts on pages C-4 and C-16. Whenever a vehicle is drawing drive power the noise level is considerably higher as indicated on page C-4.

3.5 Monocab Site

Notations are written on the charts which denote vehicle movements occurring simultaneously with noise peaks. For the most part, the notations refer to a vehicle entering, and also leaving a station, and acceleration after coming out of the southeast turn on the guideway.

4.0 Time Log

The time schedule of activities for the vehicles at the four PRT sites is included as Appendix E of this report.

APPENDIX A

POWER LINE CONDUCTION MEASUREMENTS DATA

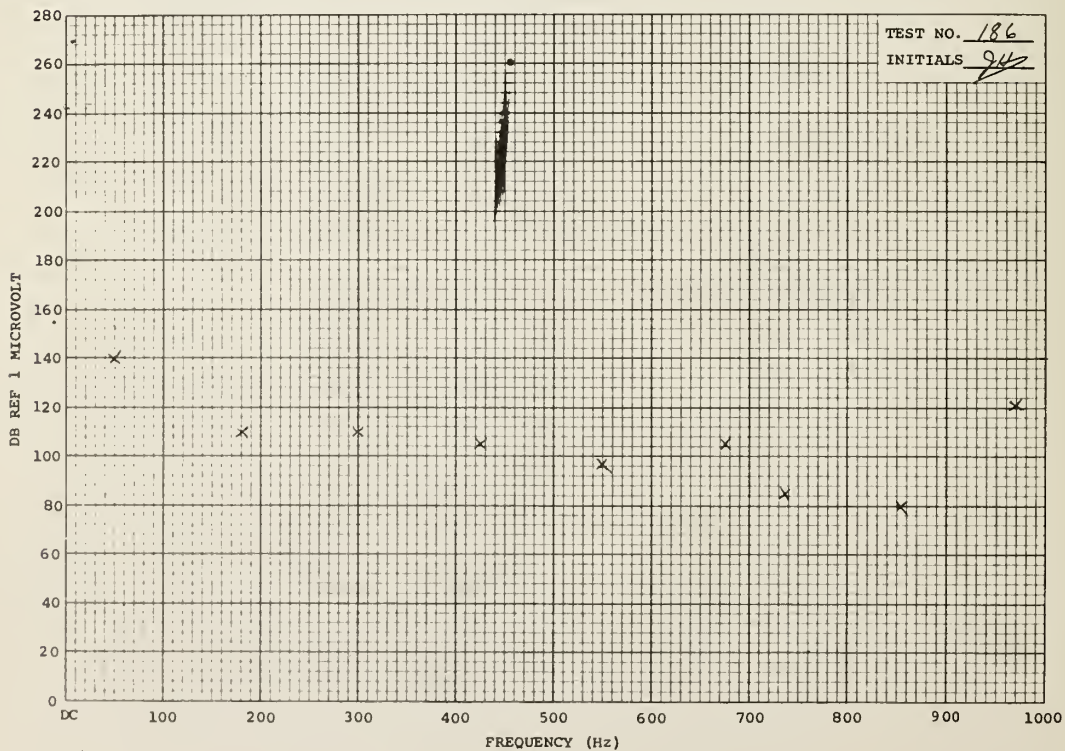
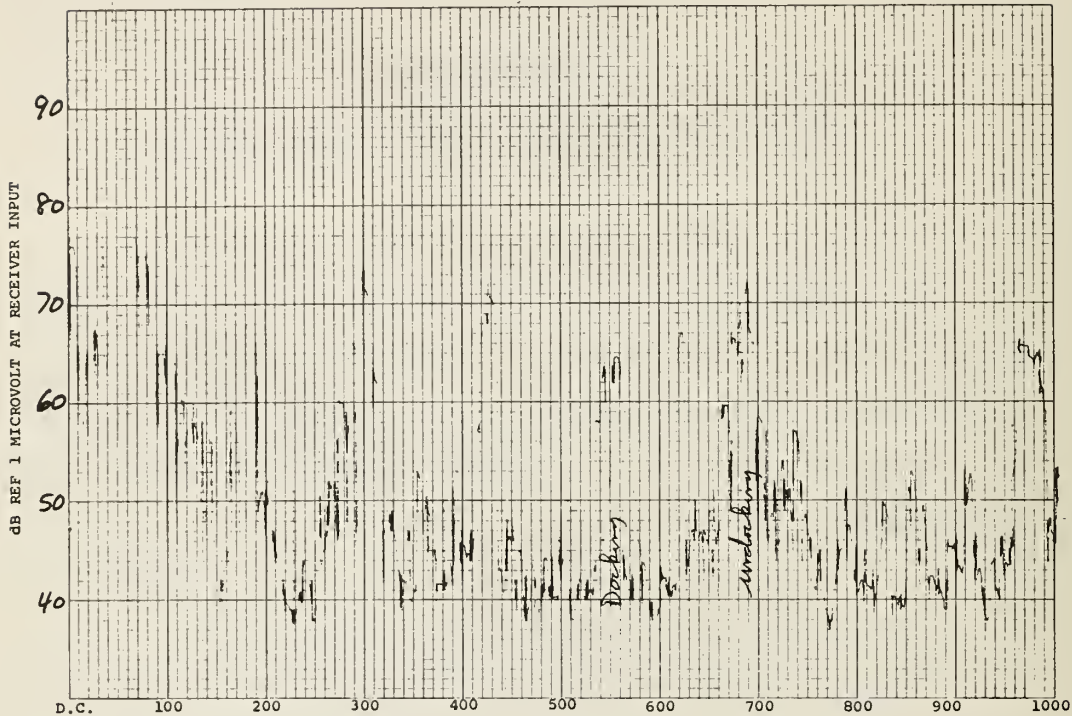
This Appendix contains data charts for Test No. 176 through 191 as recorded at the TTI Site. The charts are presented in order of phase -- A, B, C and neutral for ease of analysis, rather than in numerical order as the tests were performed.

TEST NO. 186
TEST SPECIMEN QA
7.7.2

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 5Hz
DATE 7-25-72

1547
JRC.

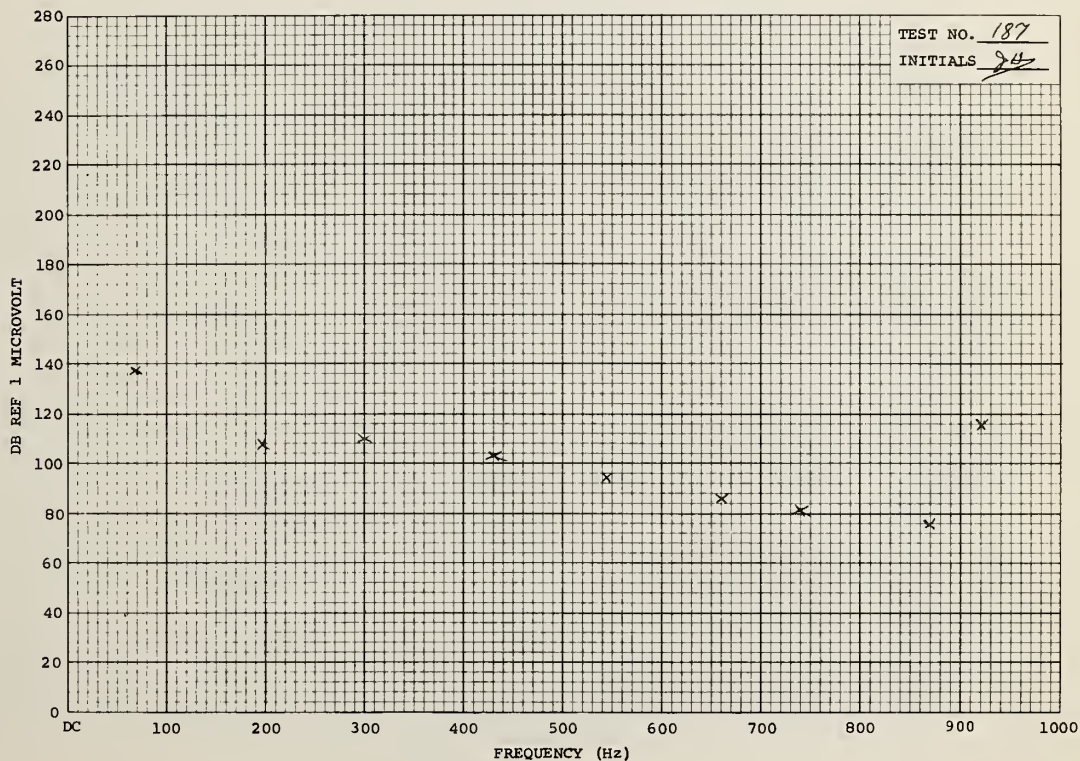
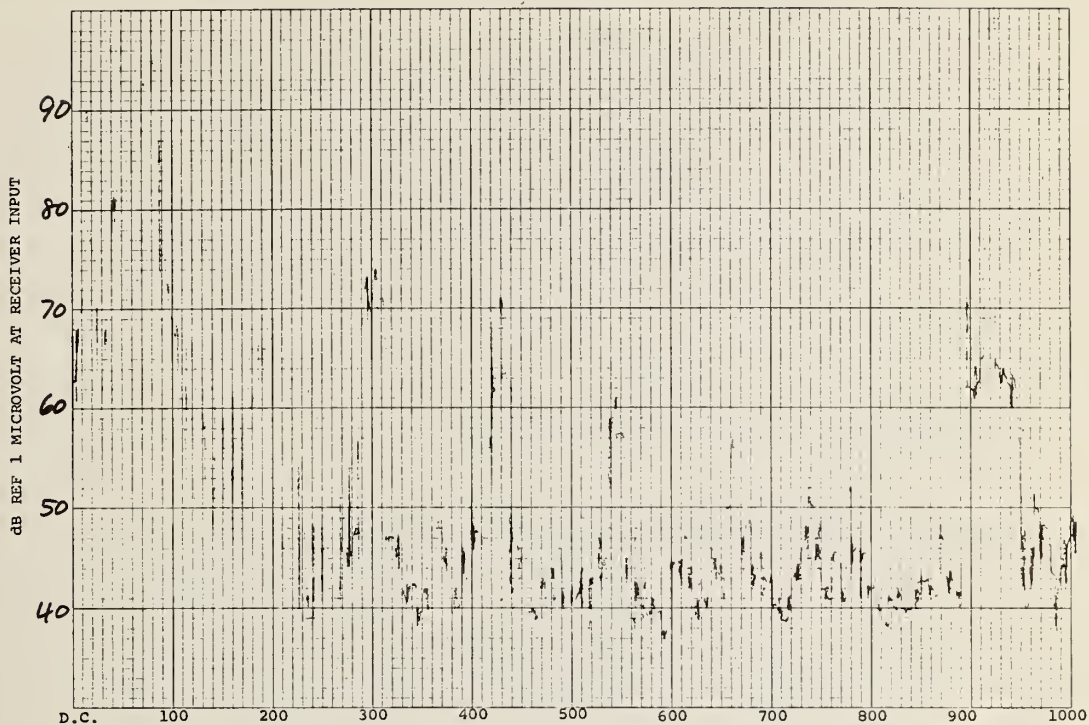


TEST NO. 187
TEST SPECIMEN QA
T.T.I

TEST TYPE PLC
TEST EQUIP. EMK-10

BANDWIDTH 5Hz
DATE 7-25-72

1553
VRc

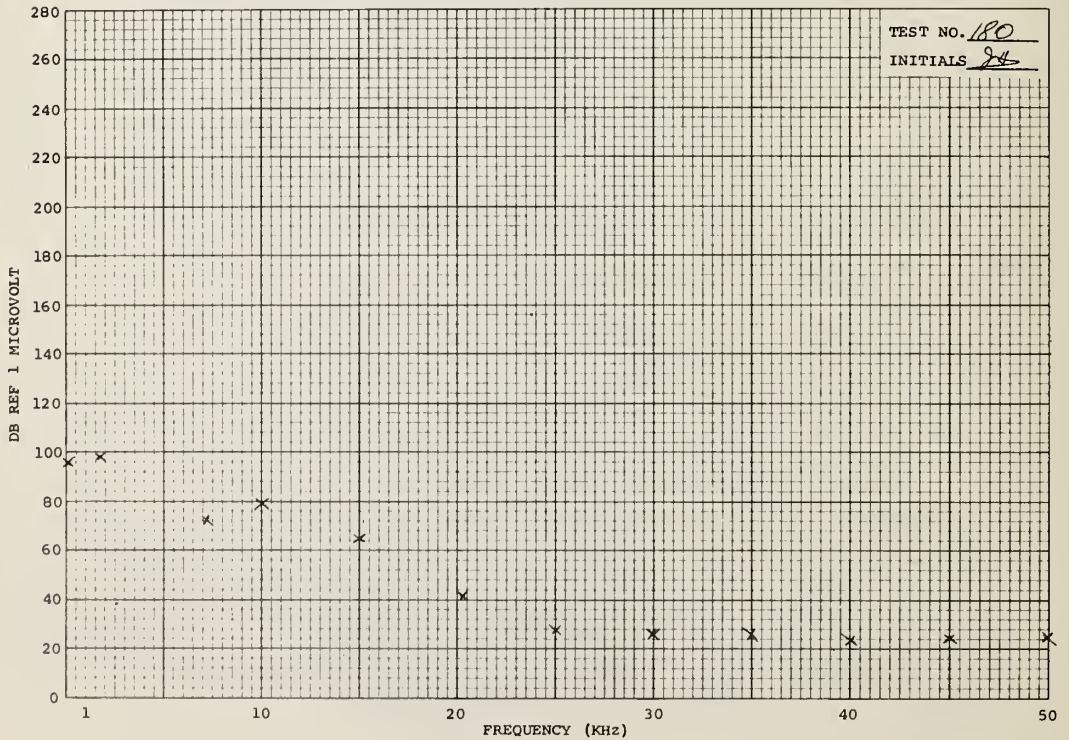
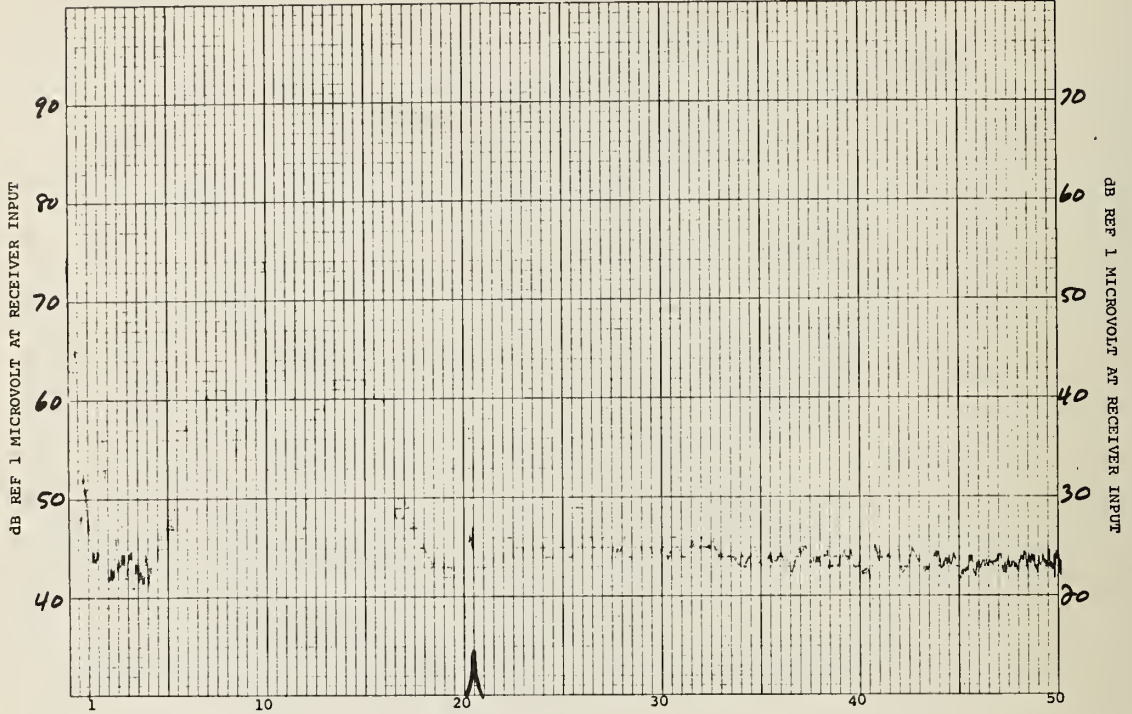


TEST NO. 180
TEST SPECIMEN QA
T.T.I.

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 50Hz
DATE 7-25-72

1500
EA



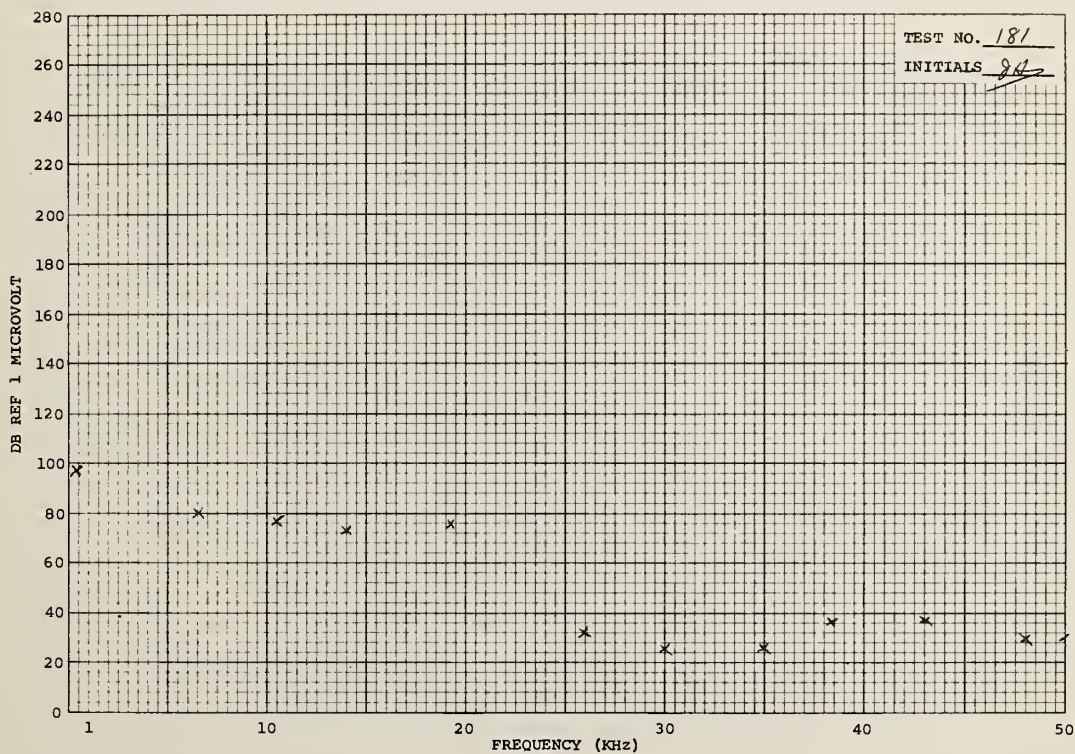
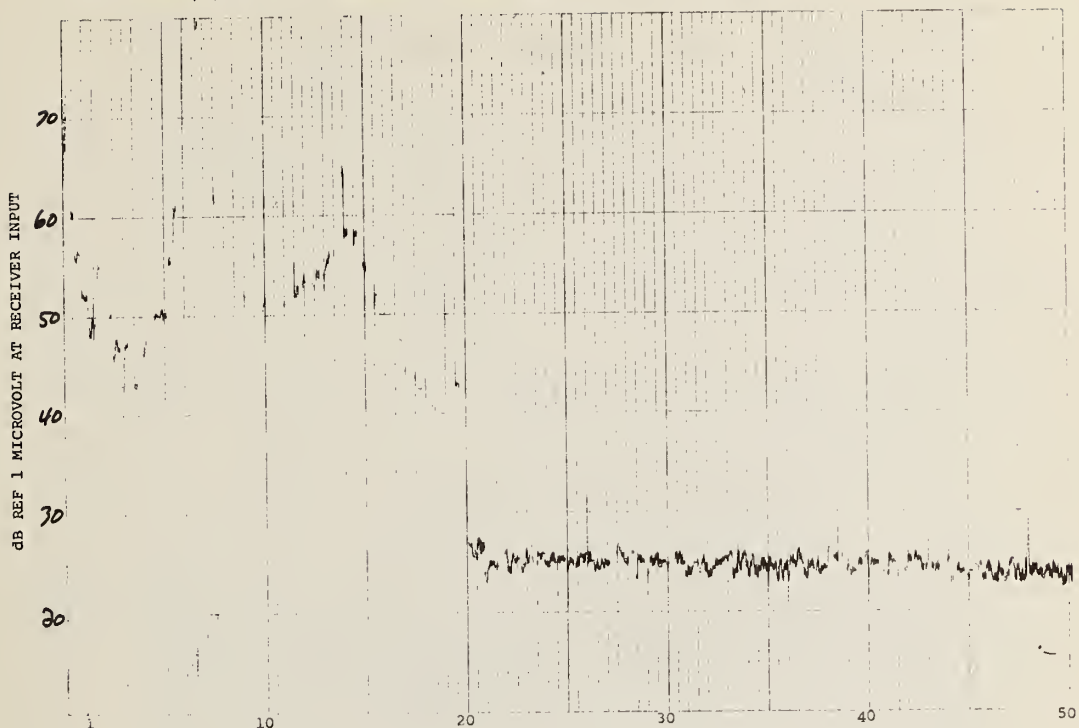
TEST NO. 180
INITIALS EA

TEST NO. 181
TEST SPECIMEN PA
T.T.I.

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
DATE 7-25-72

1507
CEJ

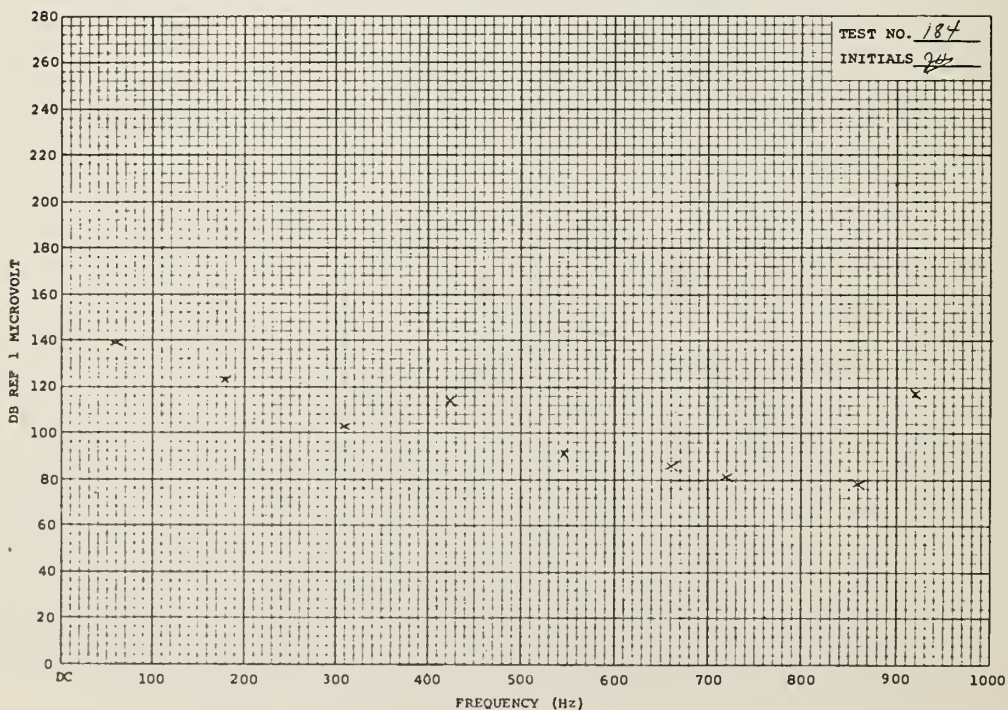
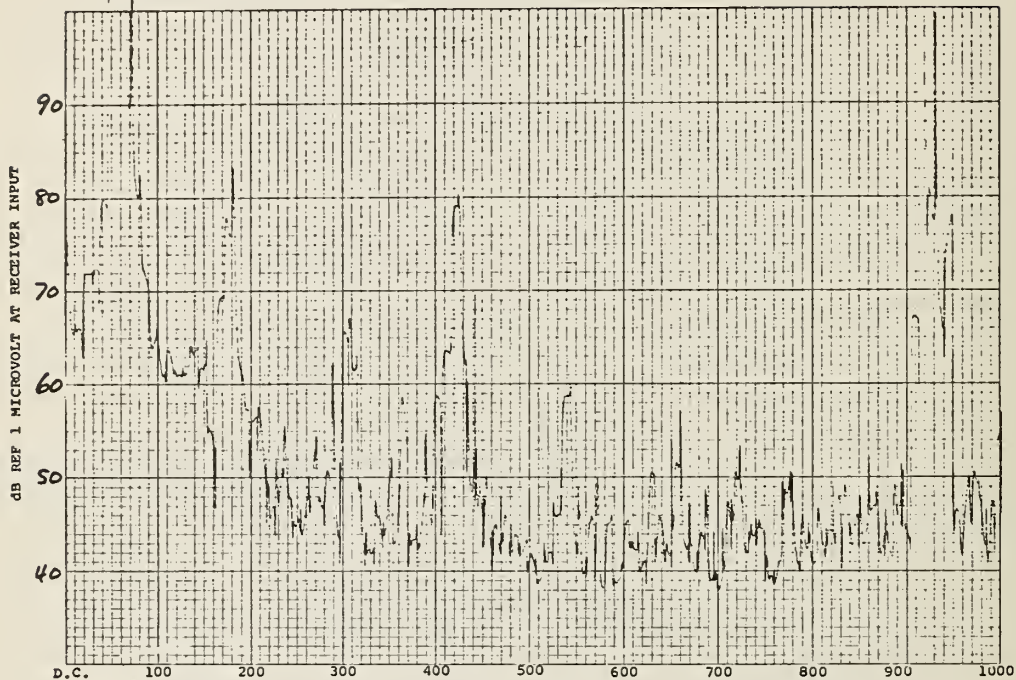


TEST NO. 184
TEST SPECIMEN QB
T.T.I.

TEST TYPE PLC
TEST EQUIP. ENC-10

BANDWIDTH 5 Hz
DATE 7-25-72

1537
VRC

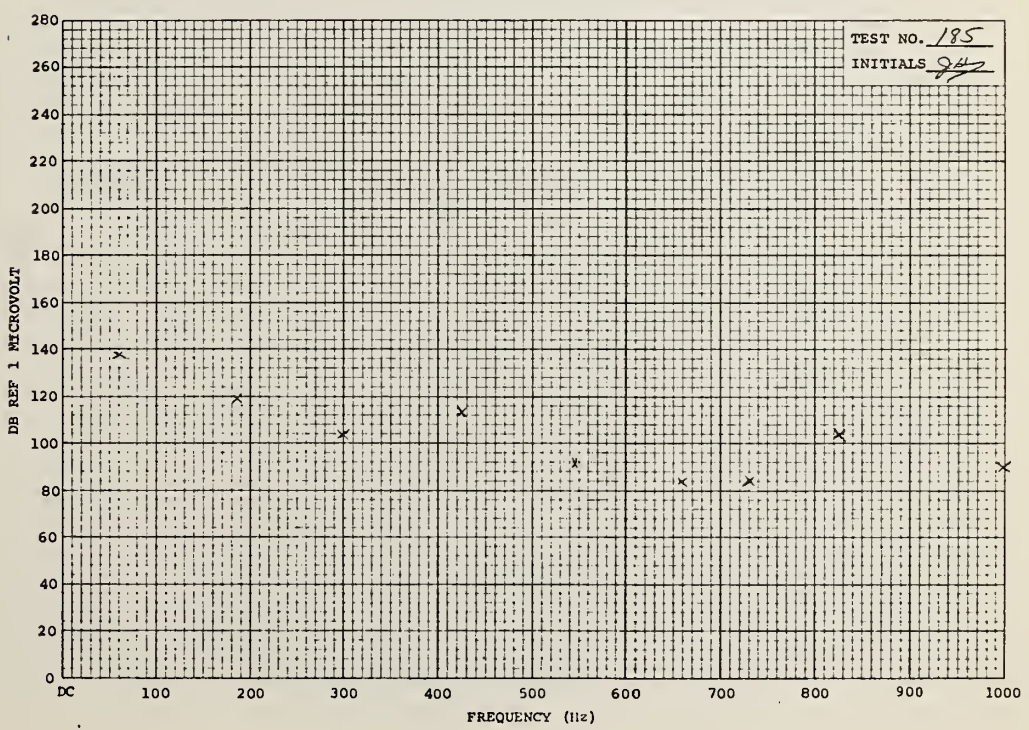
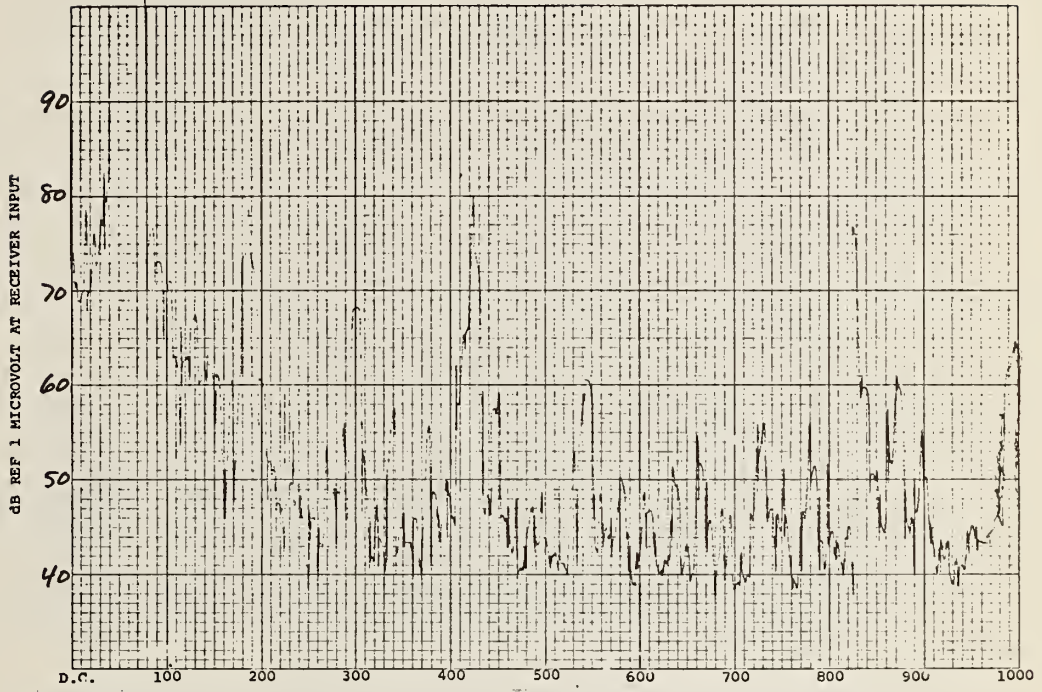


TEST NO. 185
TEST SPECIMEN QB

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 5Hz
DATE 7-25-72

1540
VRC

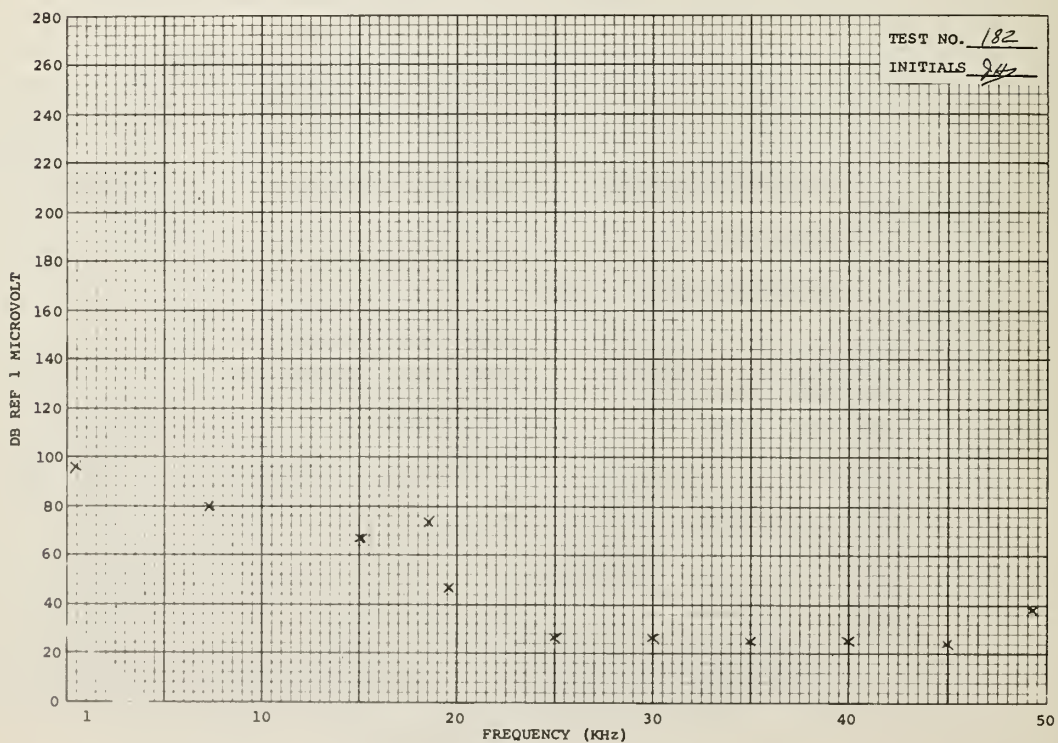
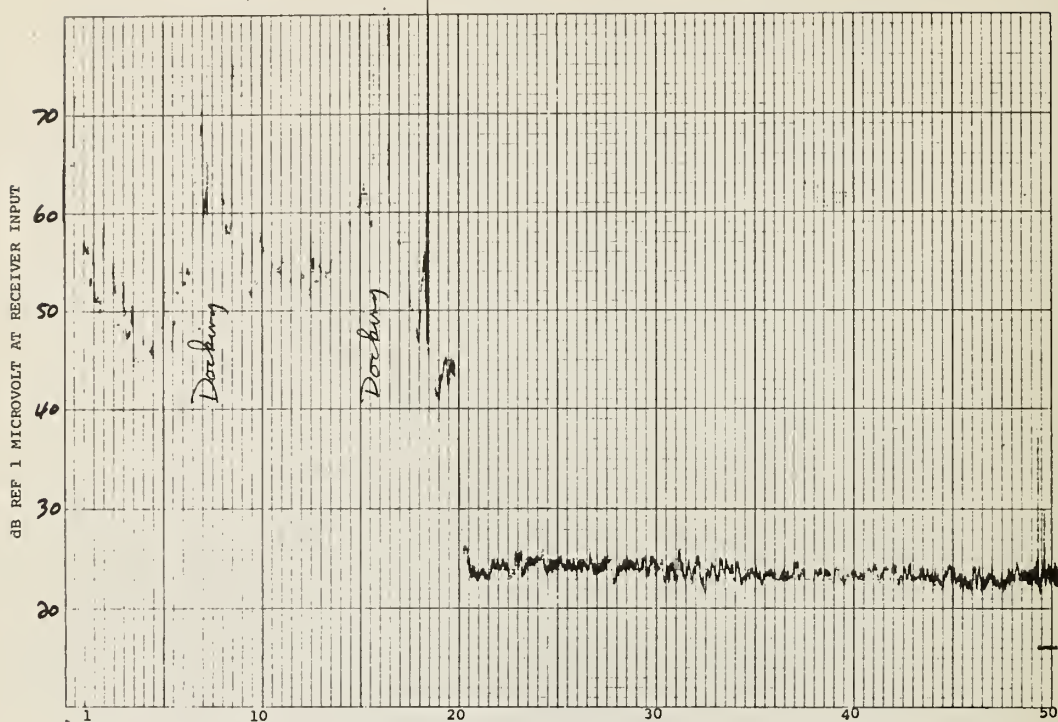


TEST NO. 182
TEST SPECIMEN QB
T.T.I.

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
DATE 7-25-72

1513
EEL

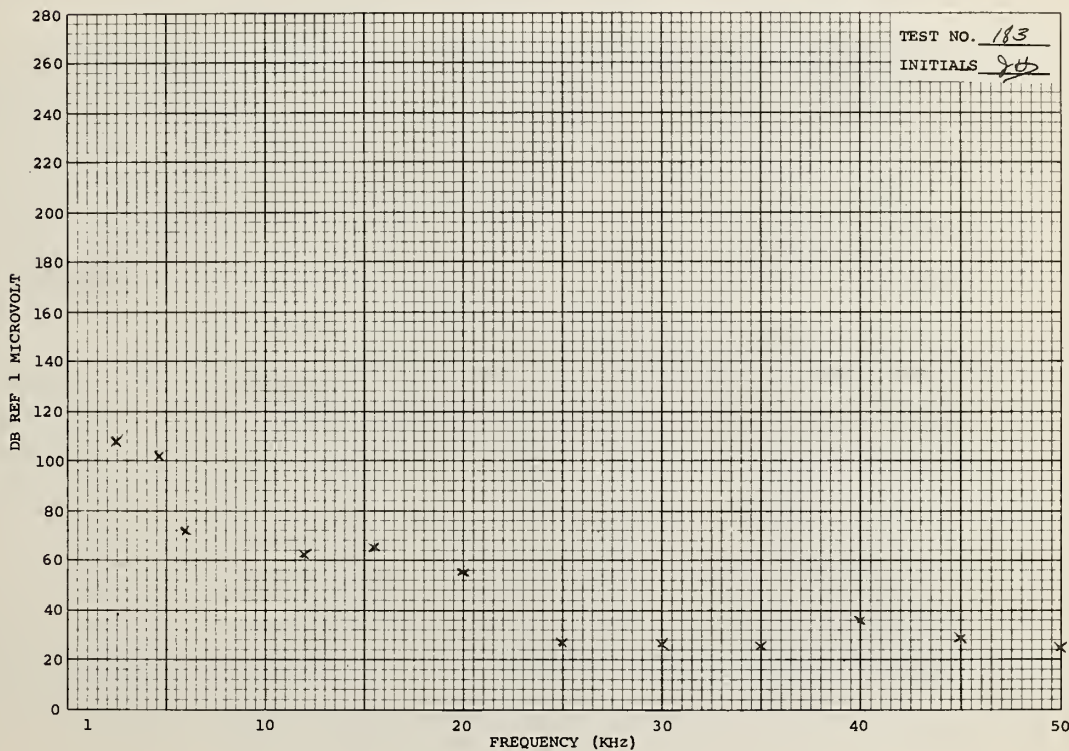
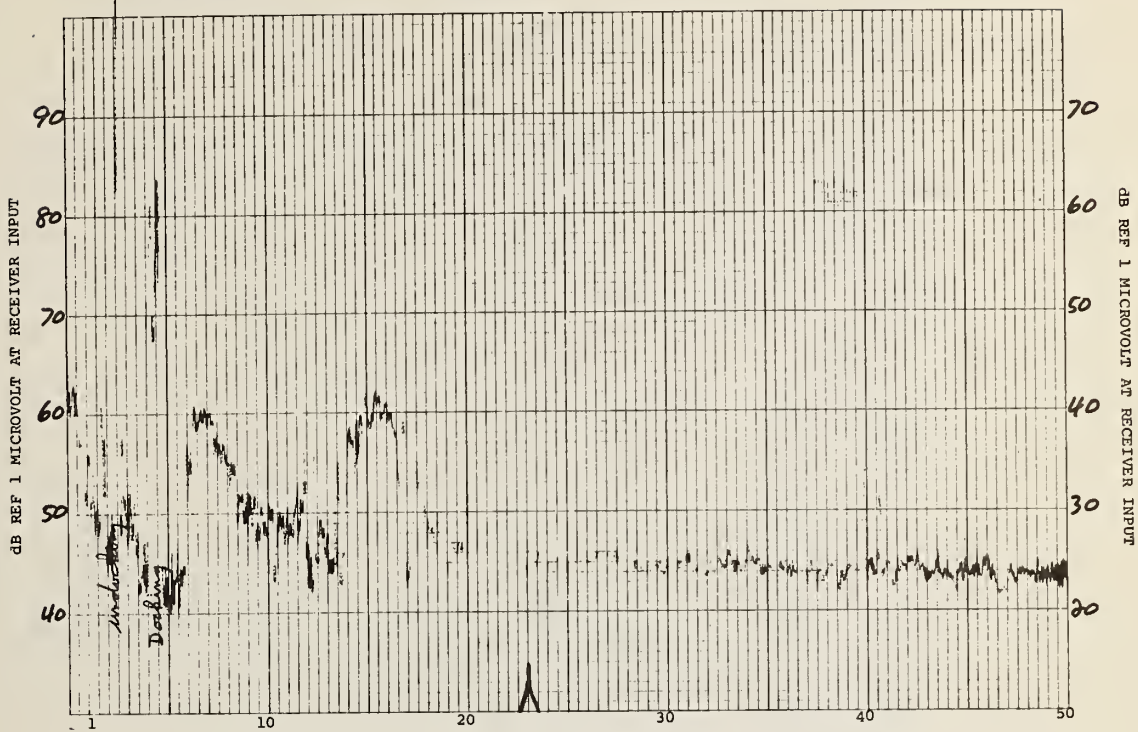


TEST NO. 183
TEST SPECIMEN QB
T.T.L.

TEST TYPE PLC
TEST EQUIP. EMC-10

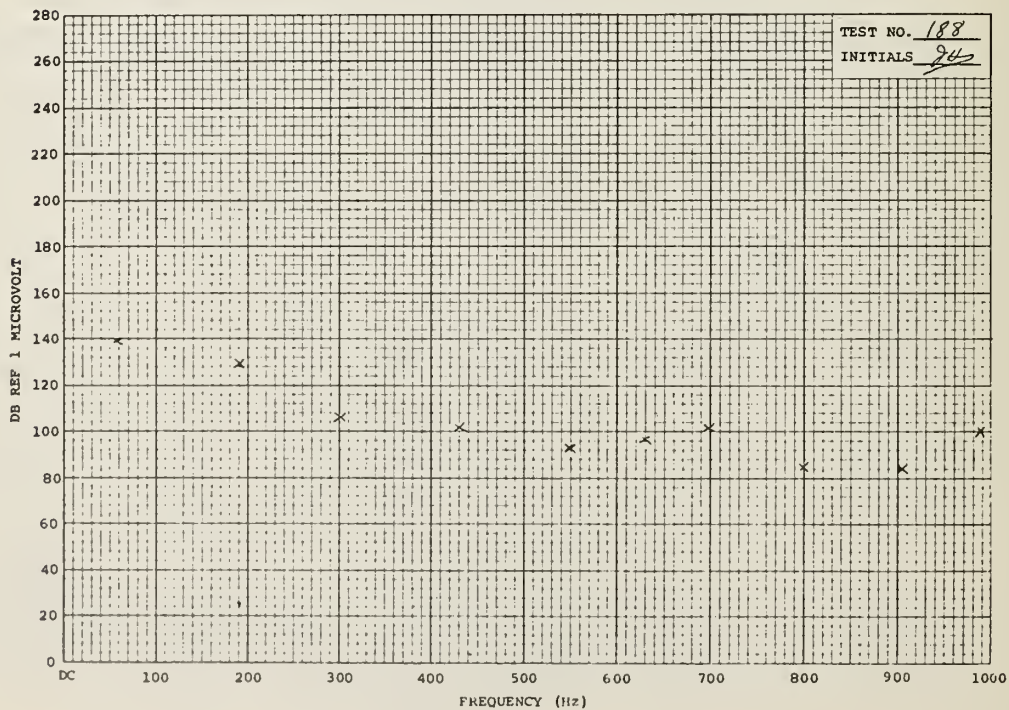
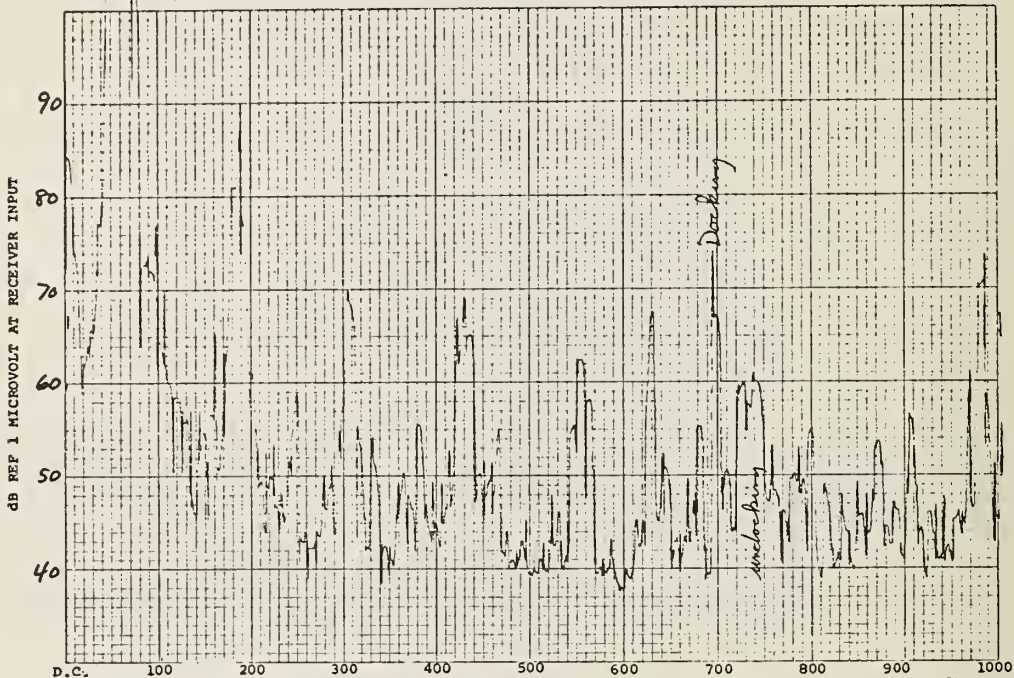
BANDWIDTH 50 Hz
DATE 7-25-72

1519
EJ



TEST NO. 183
INITIALS EJ

TEST NO. <u>188</u>	TEST TYPE <u>PLC</u>	BANDWIDTH <u>5 Hz</u>	<u>1600</u> <u>URC</u>
TEST SPECIMEN <u>Q²</u> <u>T.T.I</u>	TEST EQUIP. <u>EMC-10</u>	DATE <u>7-15-77</u>	



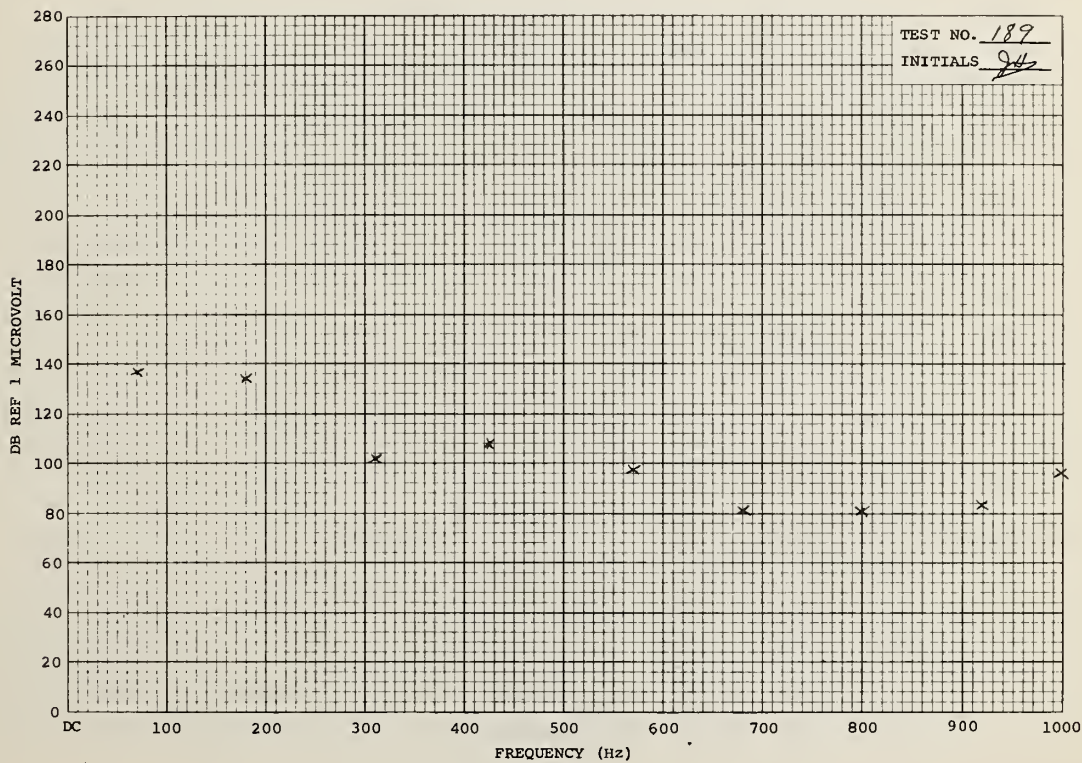
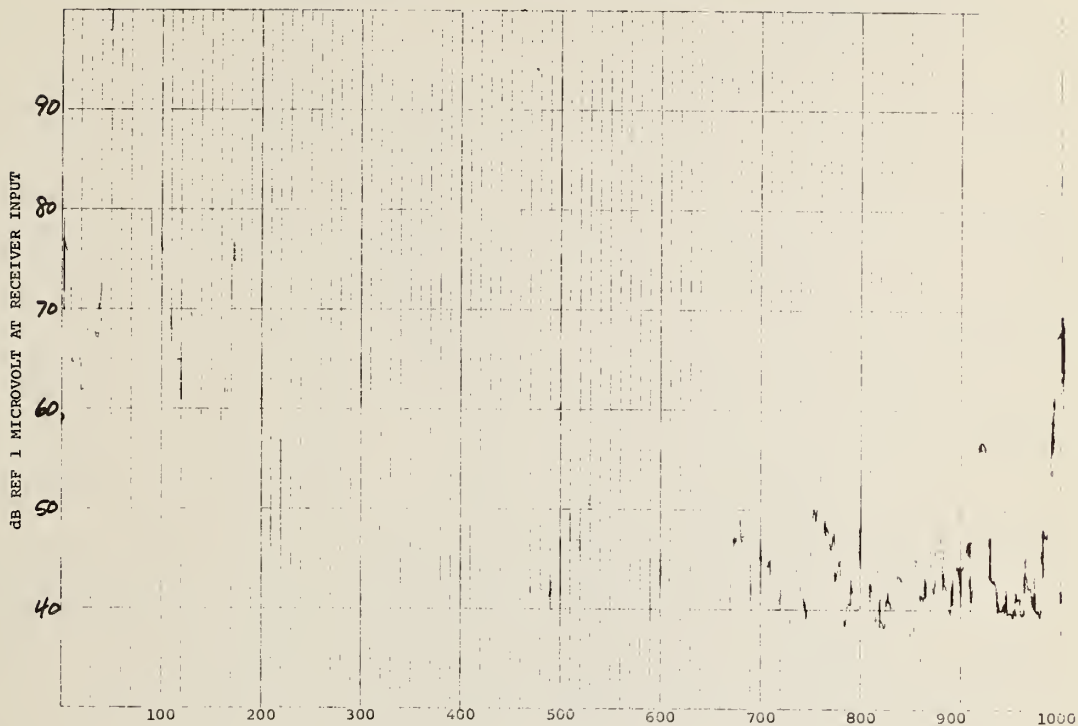
TEST NO. 189
TEST SPECIMEN OC

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 5Hz
DATE 7-25-72

1604
JRC

T.T.I

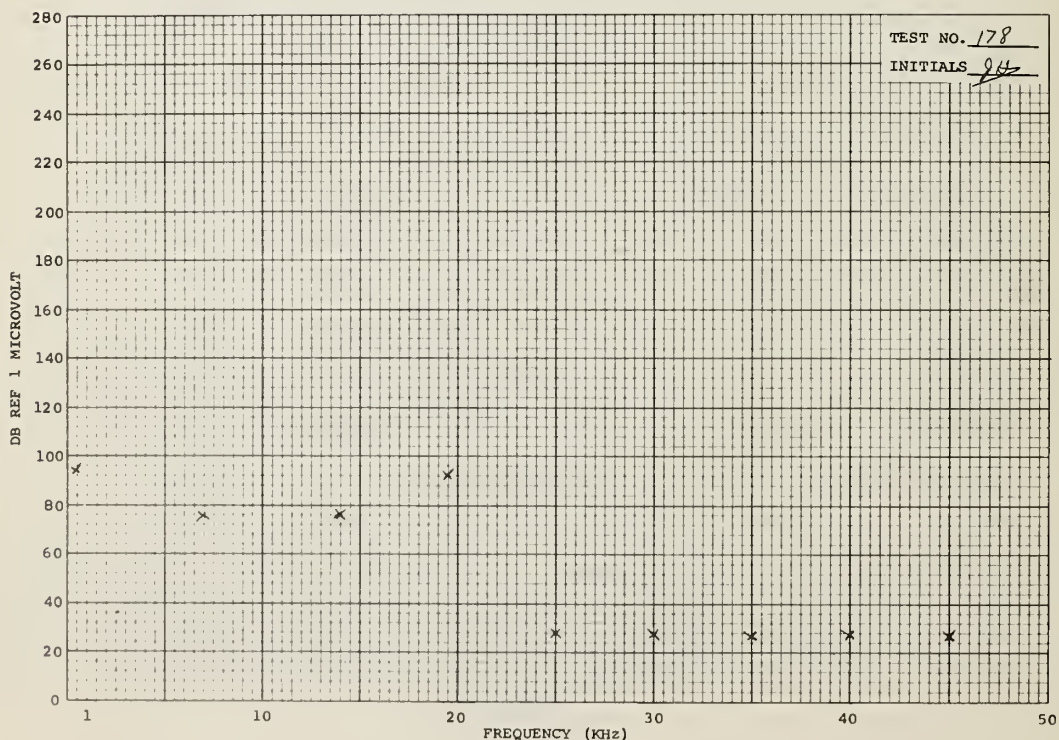
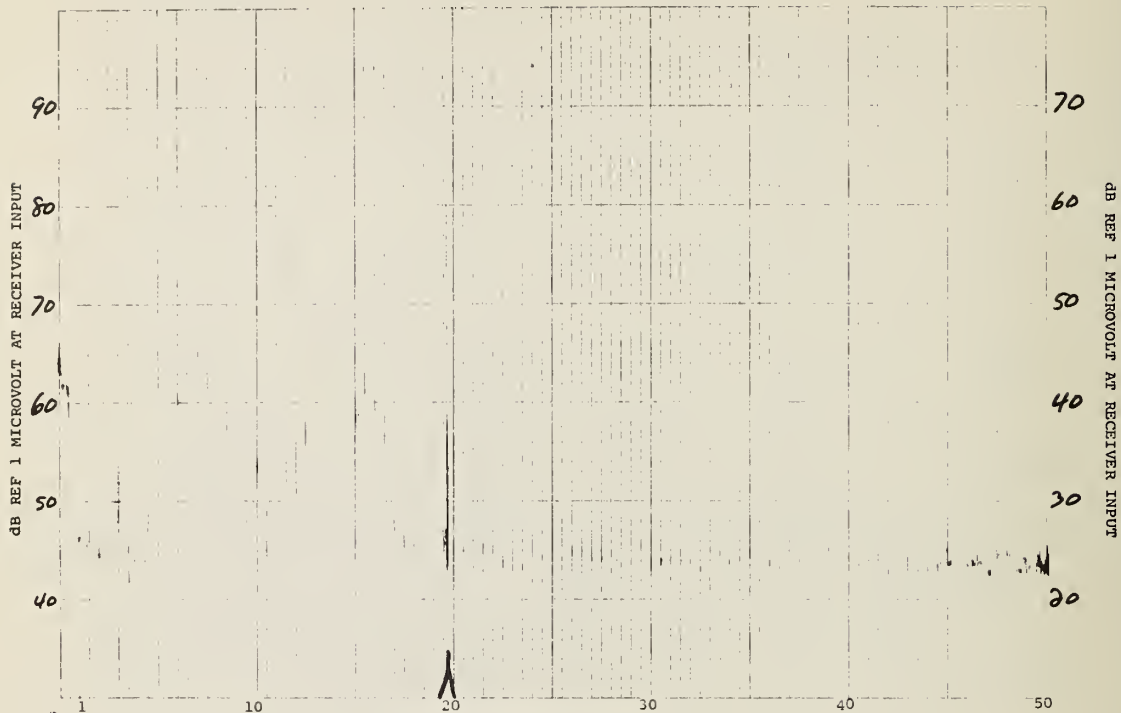


TEST NO. 178
TEST SPECIMEN PC
T.T.I.

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
DATE 7-25-72

1440
EEJ

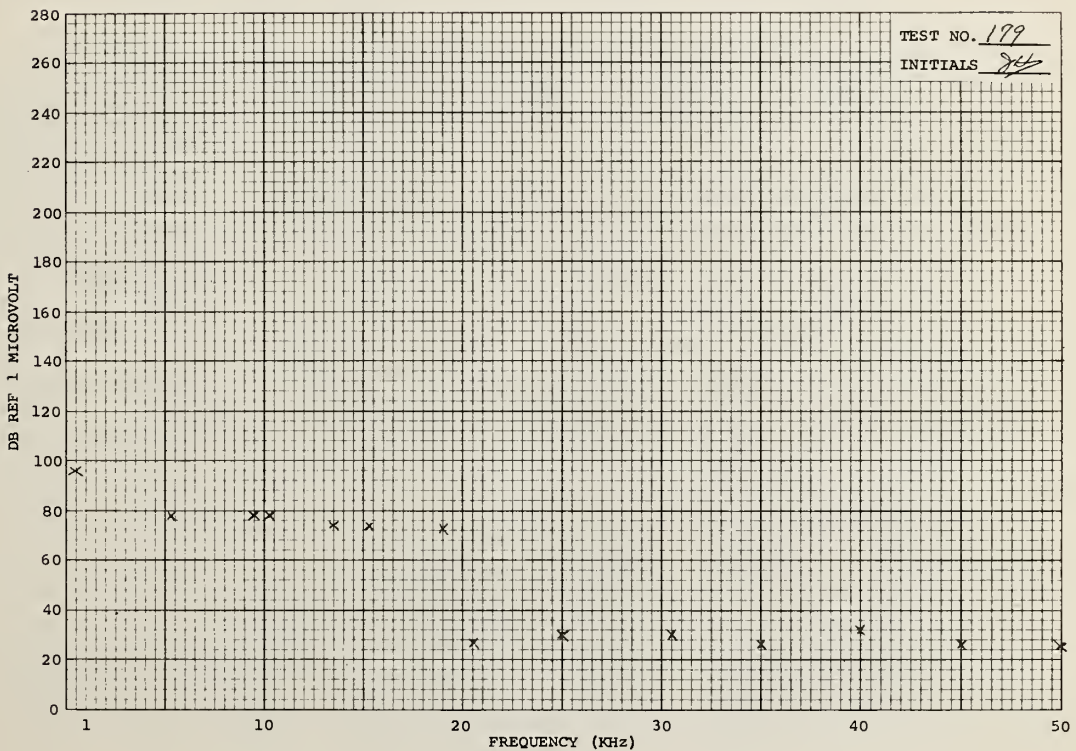
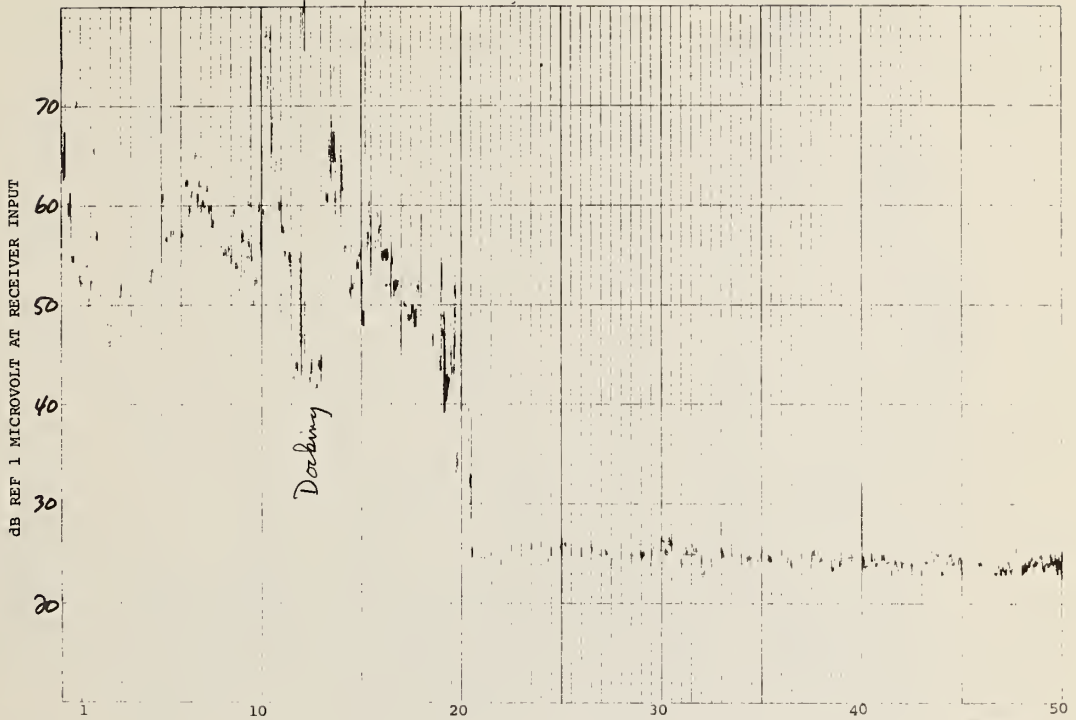


TEST NO. 179
TEST SPECIMEN QC
T.T.I.

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 50Hz
DATE 7-25-72

1447
EEJ

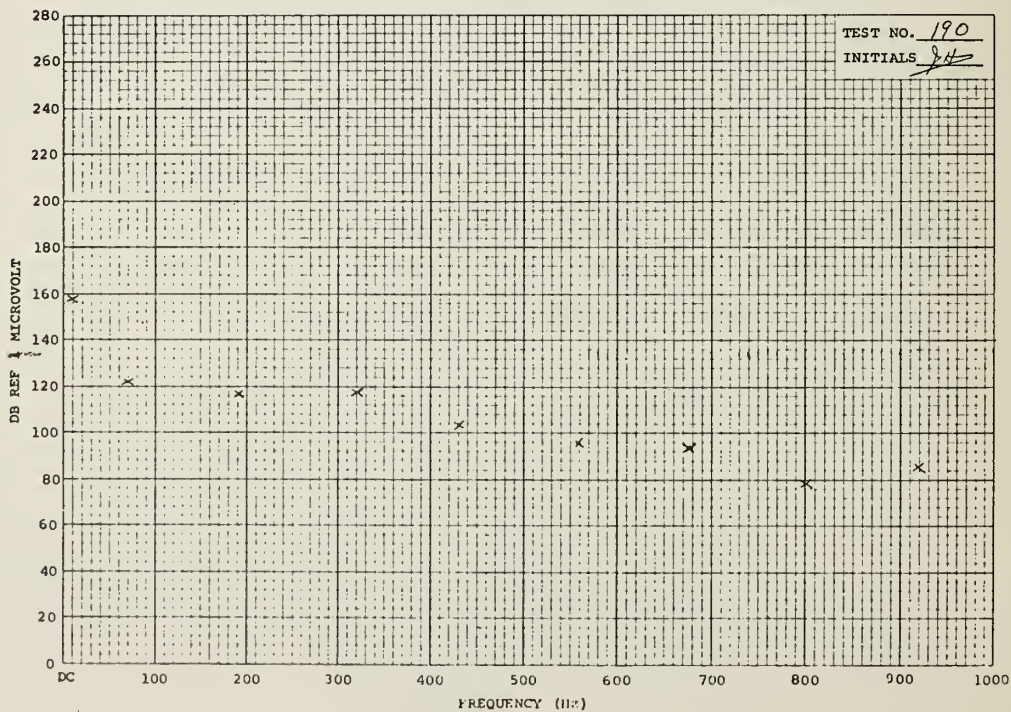
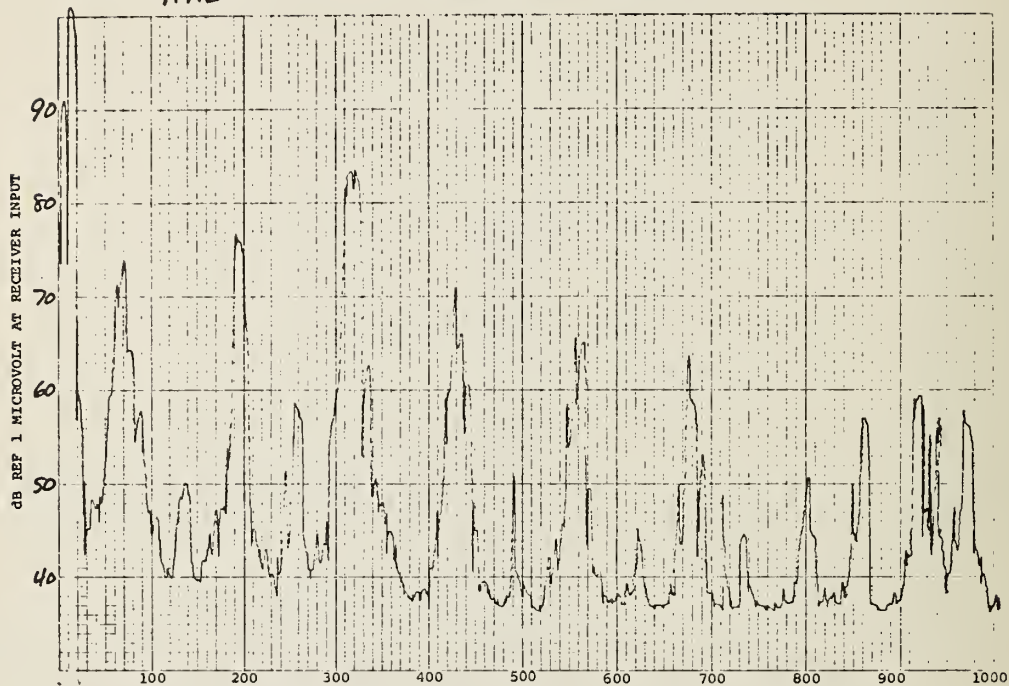


TEST NO. 190
TEST SPECIMEN NEUTRA
7.T.1

TEST TYPE PLC
TEST EQUIP. ENR 10

BANDWIDTH 5Hz
DATE 7-25-72

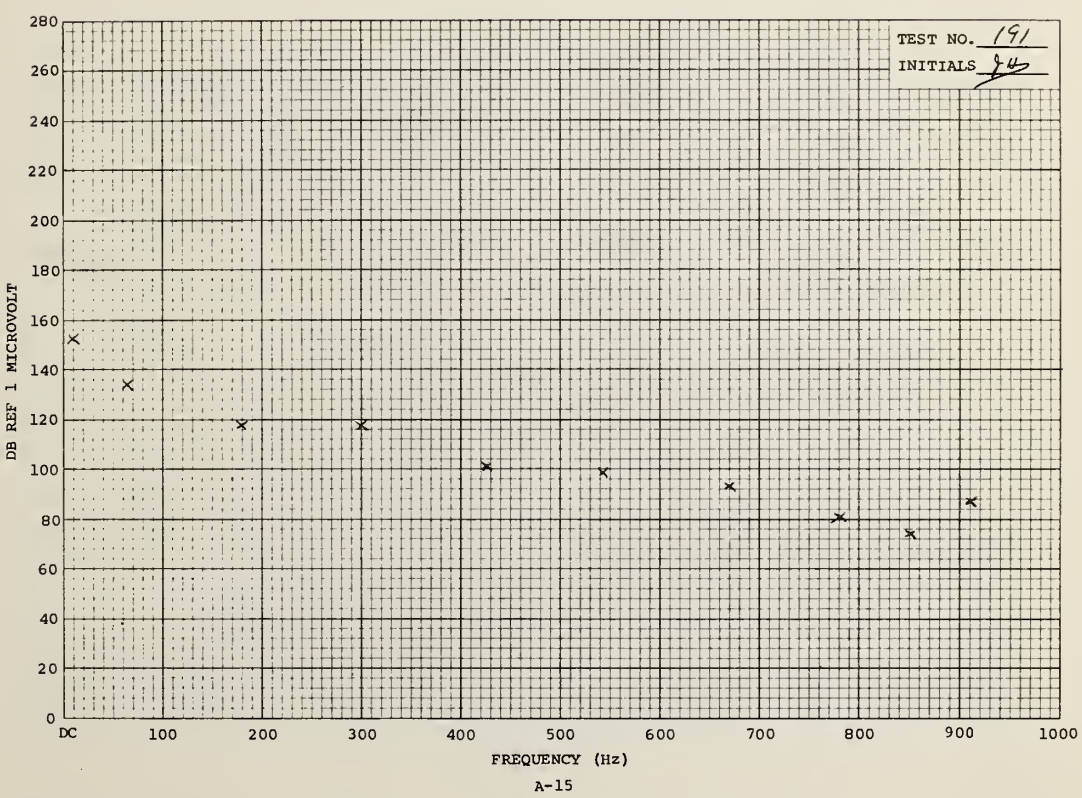
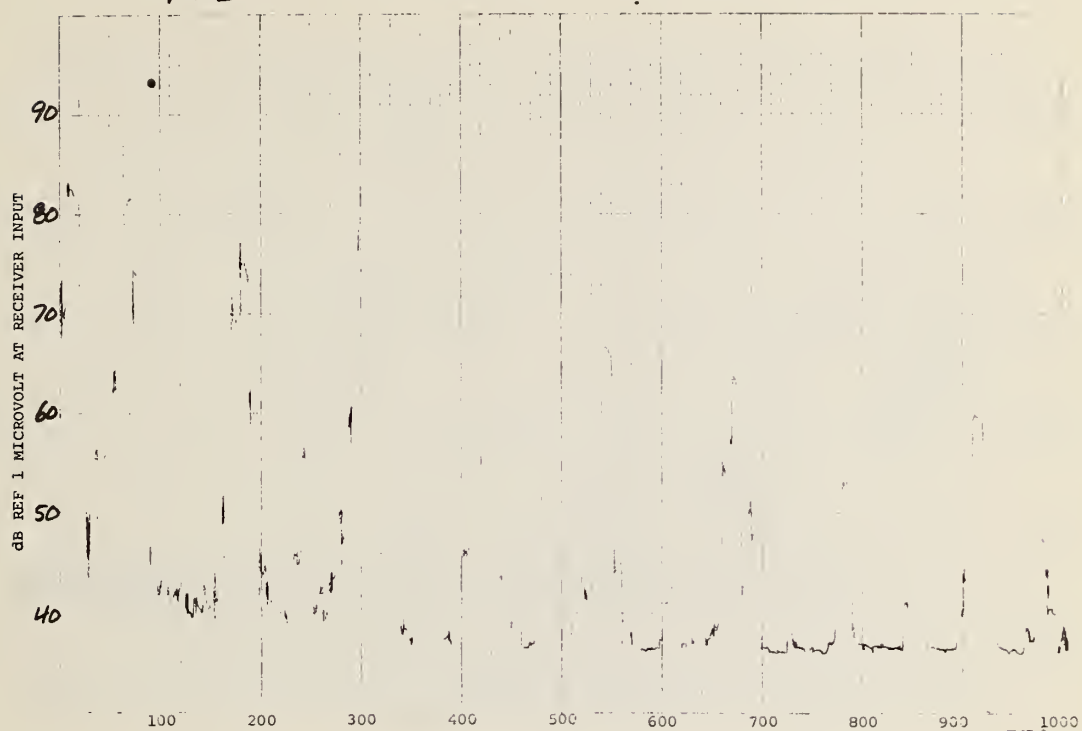
1609
URC



TEST NO. 191
TEST SPECIMEN MSURAX
T.T.I

TEST TYPE DLS
TEST EQUIP. EMC-10

BANDWIDTH 5Hz
DATE 7-25-72
1815
JRC

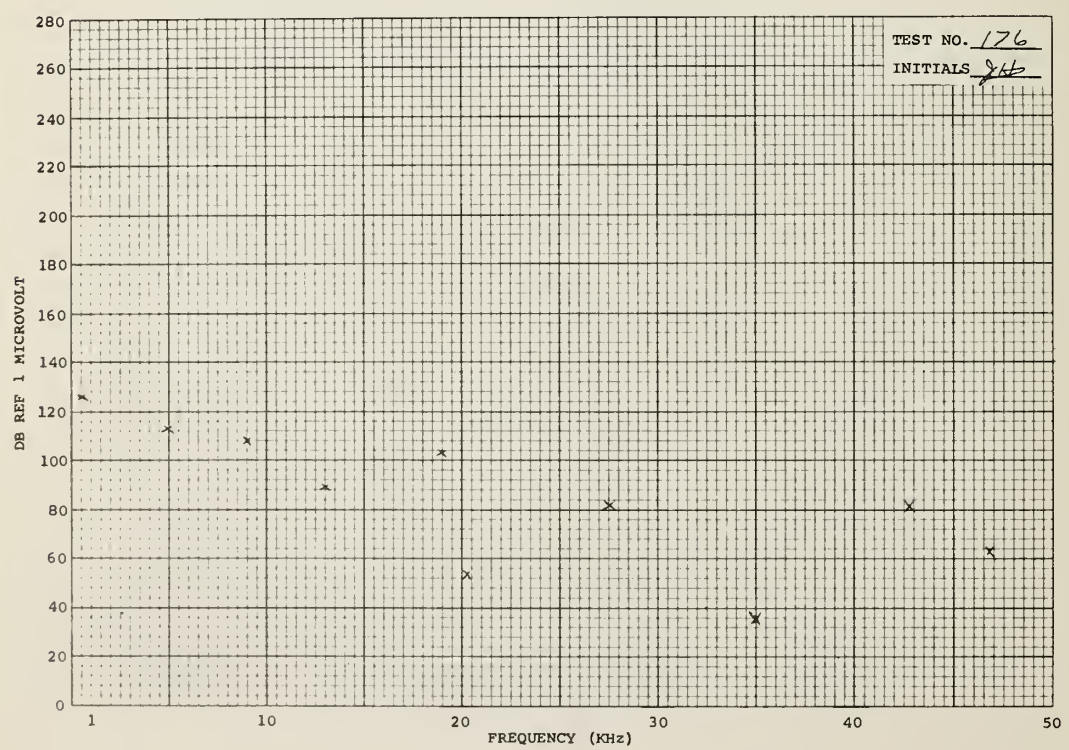
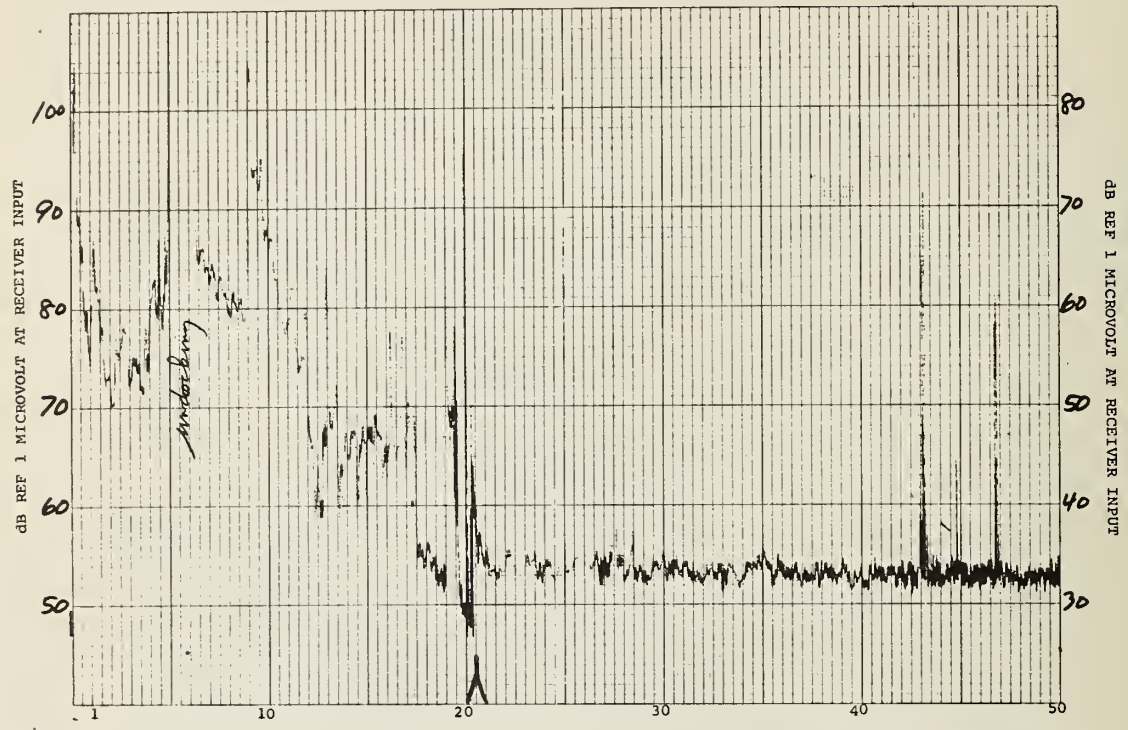


TEST NO. 176
 TEST SPECIMEN Neutral
T.T.I.

TEST TYPE PLC
 TEST EQUIP. ENC-10

BANDWIDTH 50Hz
 DATE 7-25-72

1424
EEJ

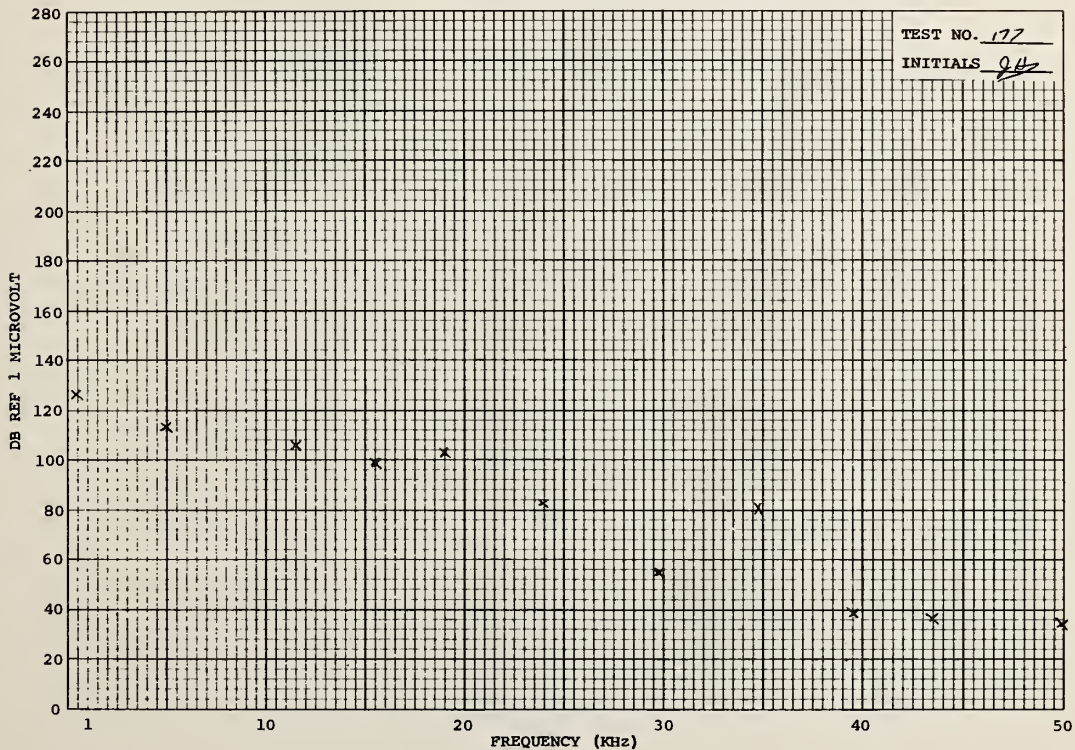
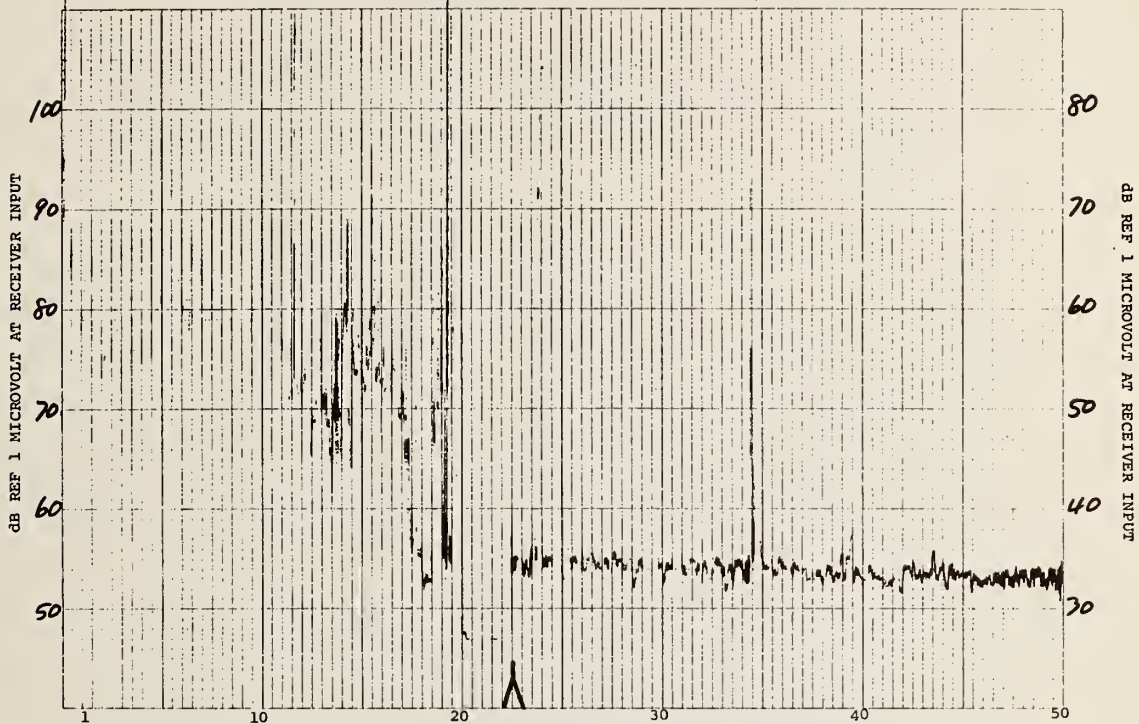


TEST NO. 177
TEST SPECIMEN pentol
T.T.I.

TEST TYPE PLC
TEST EQUIP. ENC-10

BANDWIDTH 50 Hz
DATE 7-25-72

1430
EF



APPENDIX B

POWER LINE CONDUCTIONS MEASUREMENTS DATA

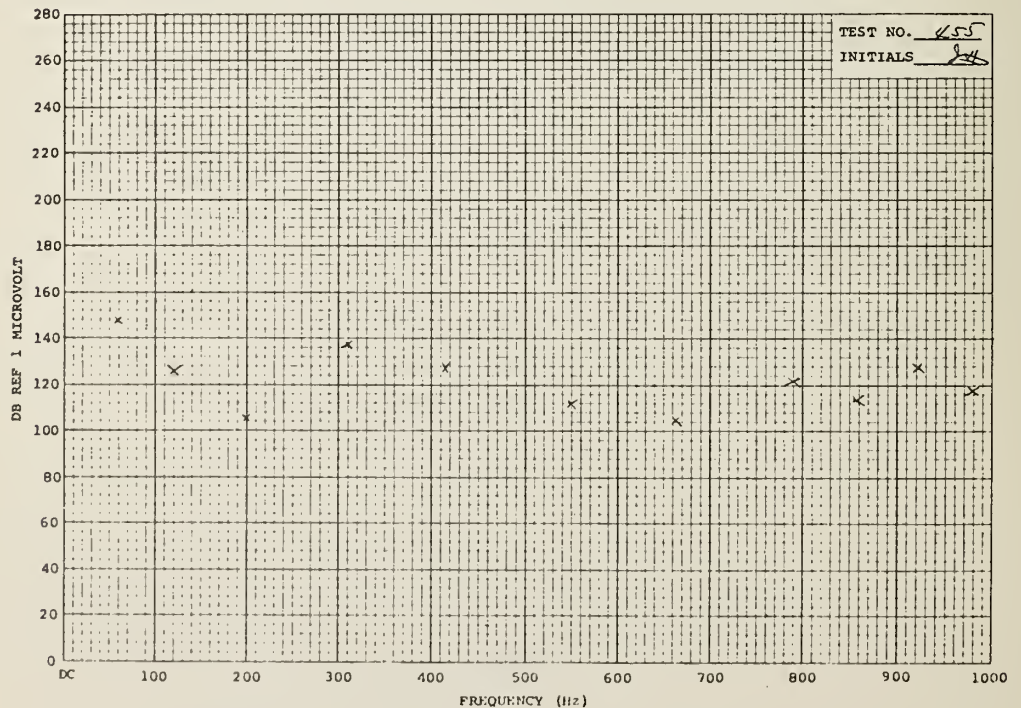
This appendix contains data charts for test No. 445 through 457, and spectrograms No. 458 through 465. The charts are presented in order of phase - A, B, and C for ease of analysis, rather than in numerical order as the tests were performed. The spectrograms are at the rear of the appendix.

TEST NO. 455
TEST SPECIMEN QA
Ford

TEST TYPE PLC
TEST EQUIP. ENC-10

BANDWIDTH 5 Hz
DATE 8-9-72

1515
88

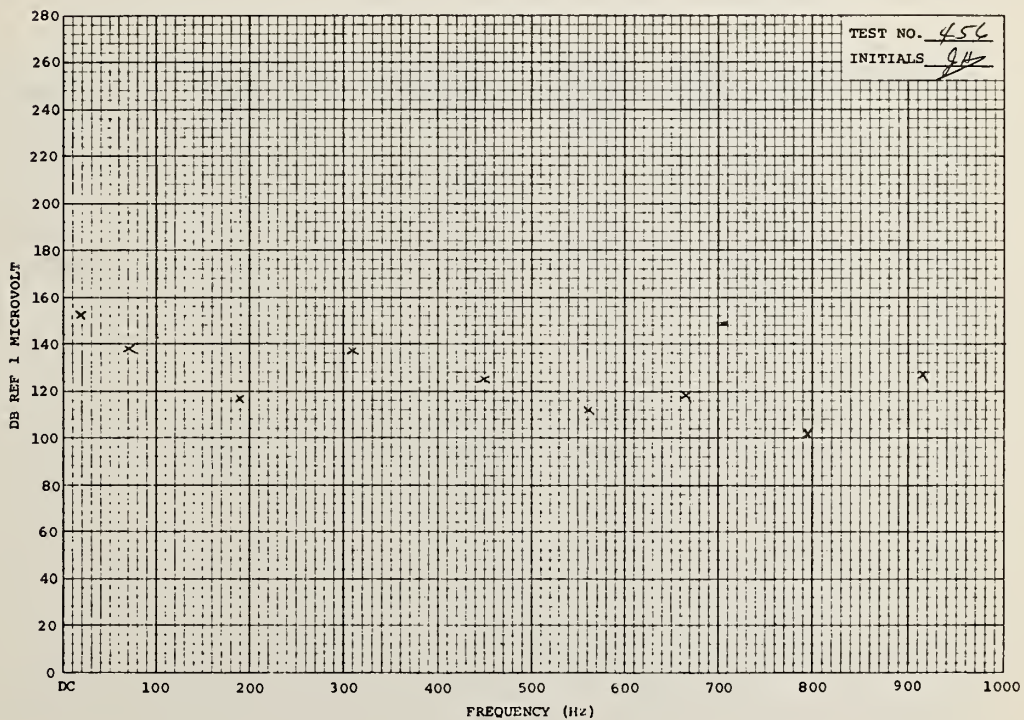
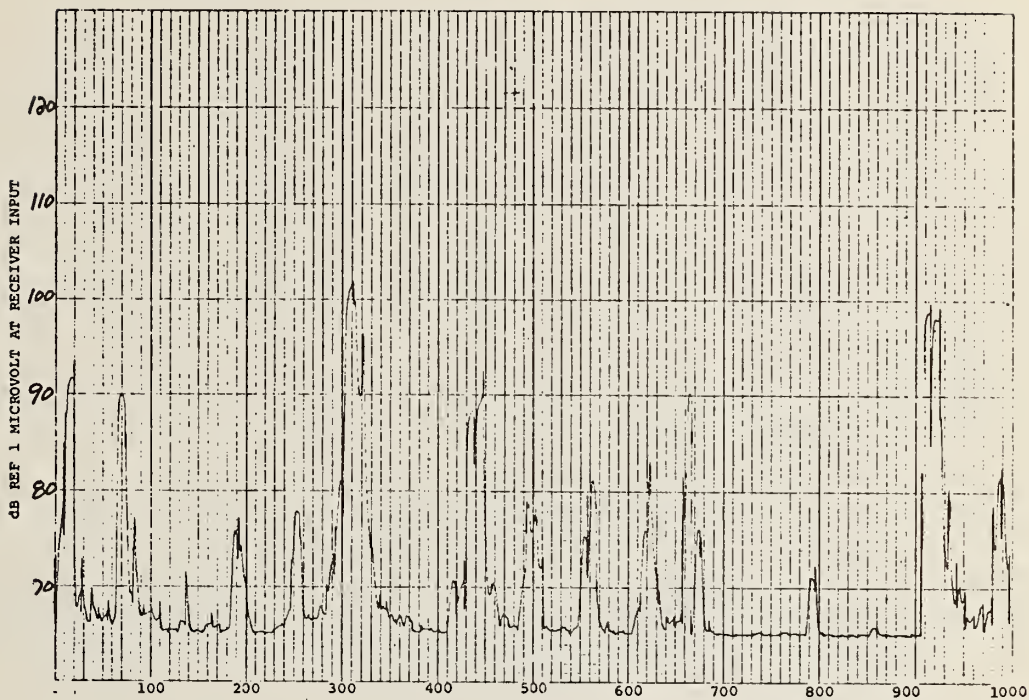


TEST NO. 456
TEST SPECIMEN 4A
Ford

TEST TYPE PLC
TEST EQUIP. ENC-10

BANDWIDTH 5 Hz
DATE 8-2-72

151P
SP

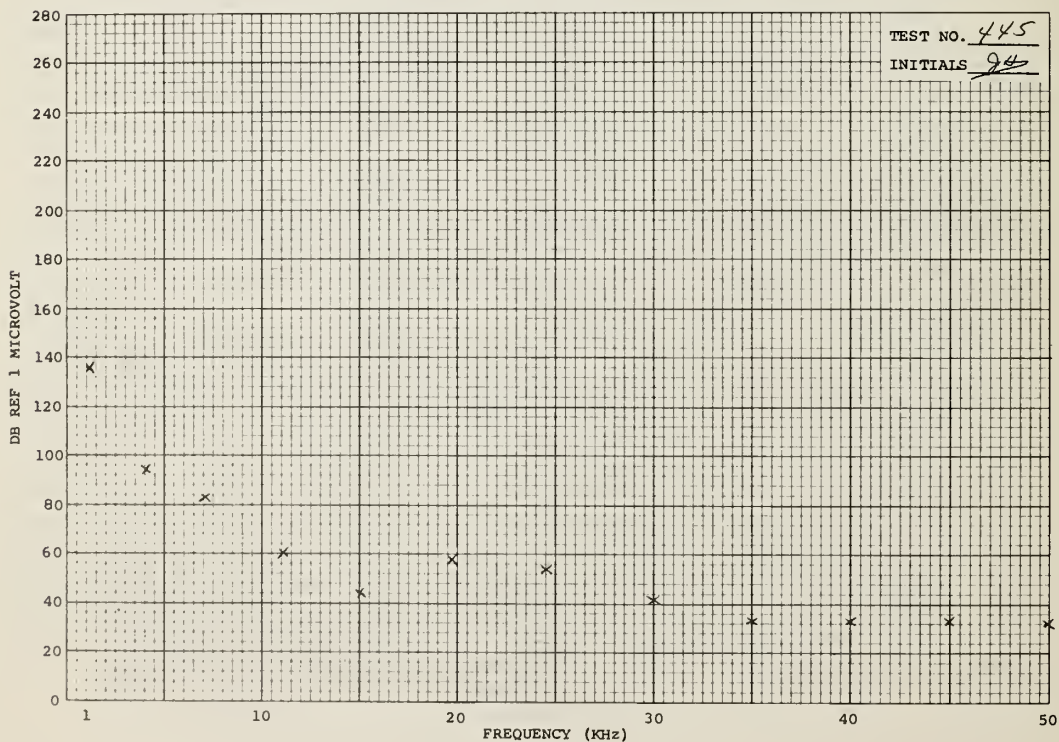
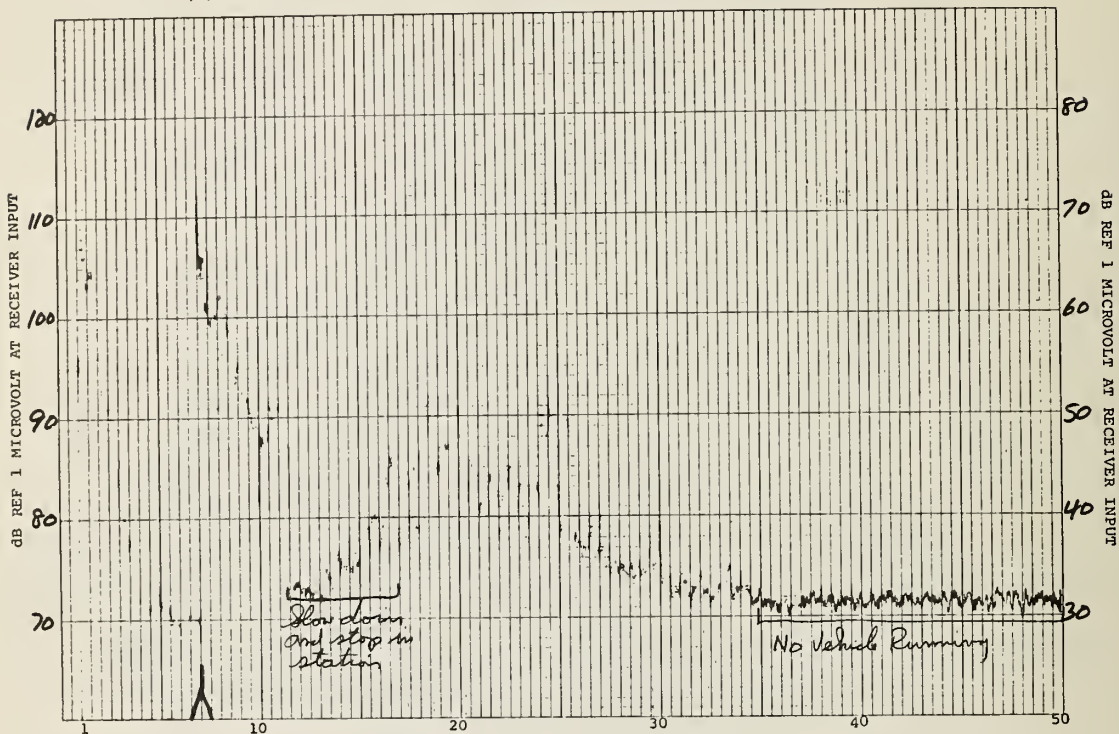


TEST NO. 445
TEST SPECIMEN QA
Ford

TEST TYPE PLC
TEST EQUIP. ENC-10

BANDWIDTH 50 Hz
DATE 8-2-70

1426
871

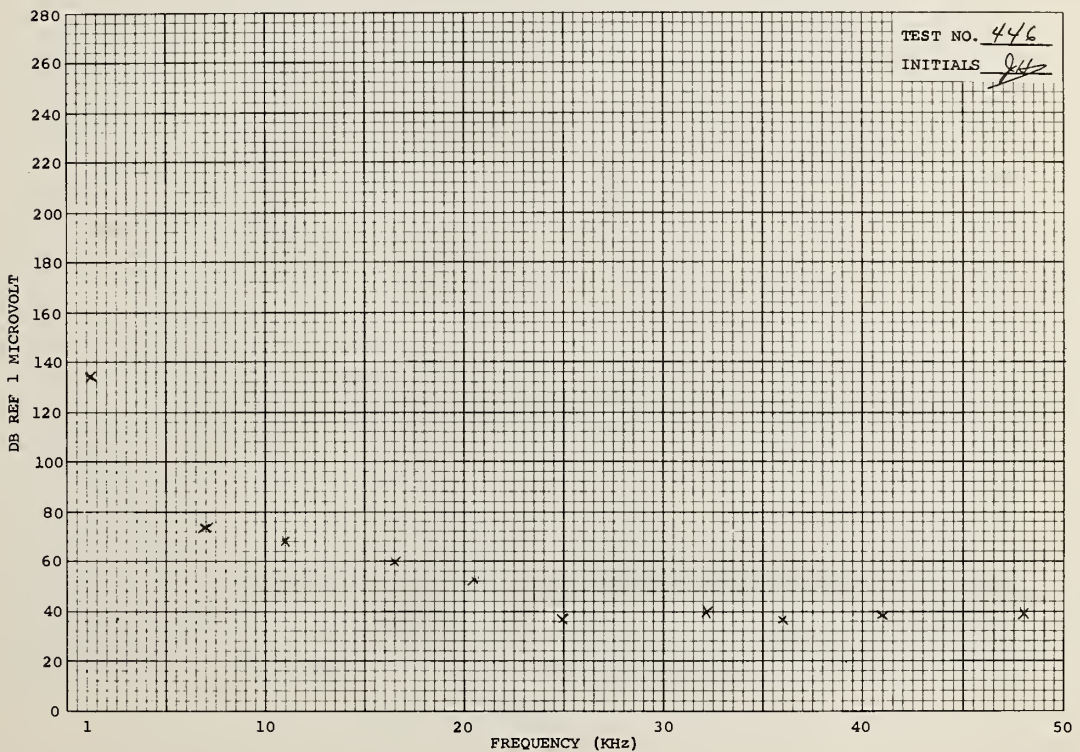
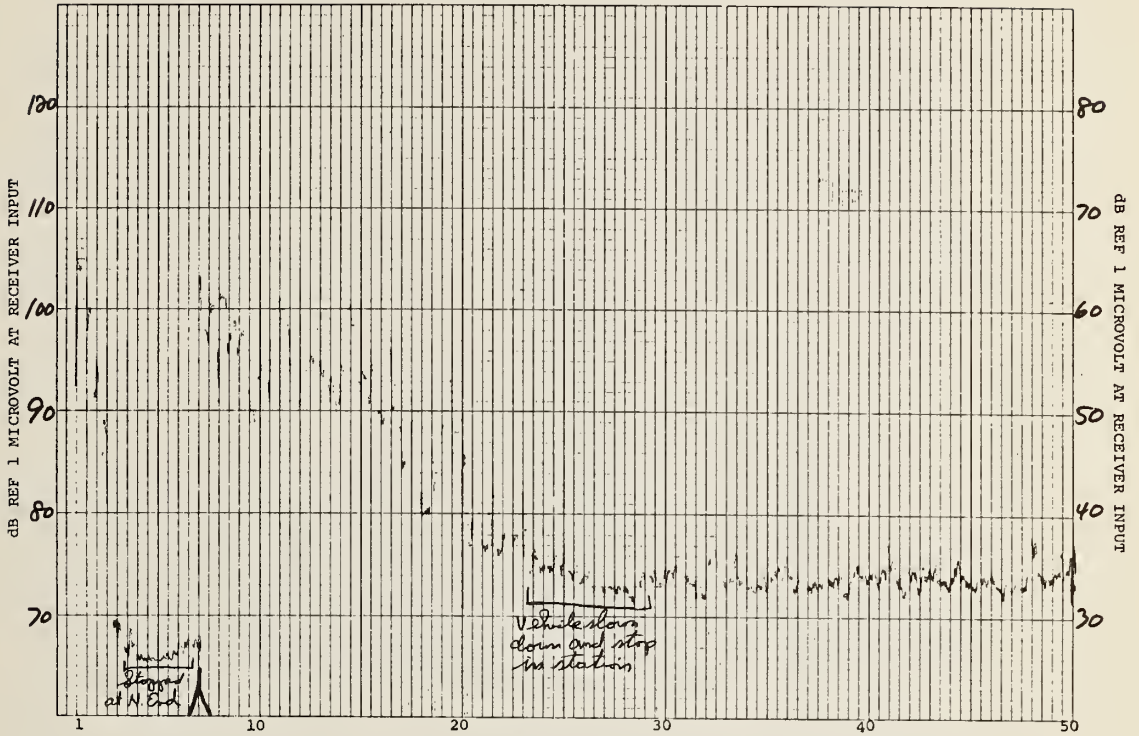


TEST NO. 446
TEST SPECIMEN PA
Ford

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
DATE 8-2-72

1431
EG

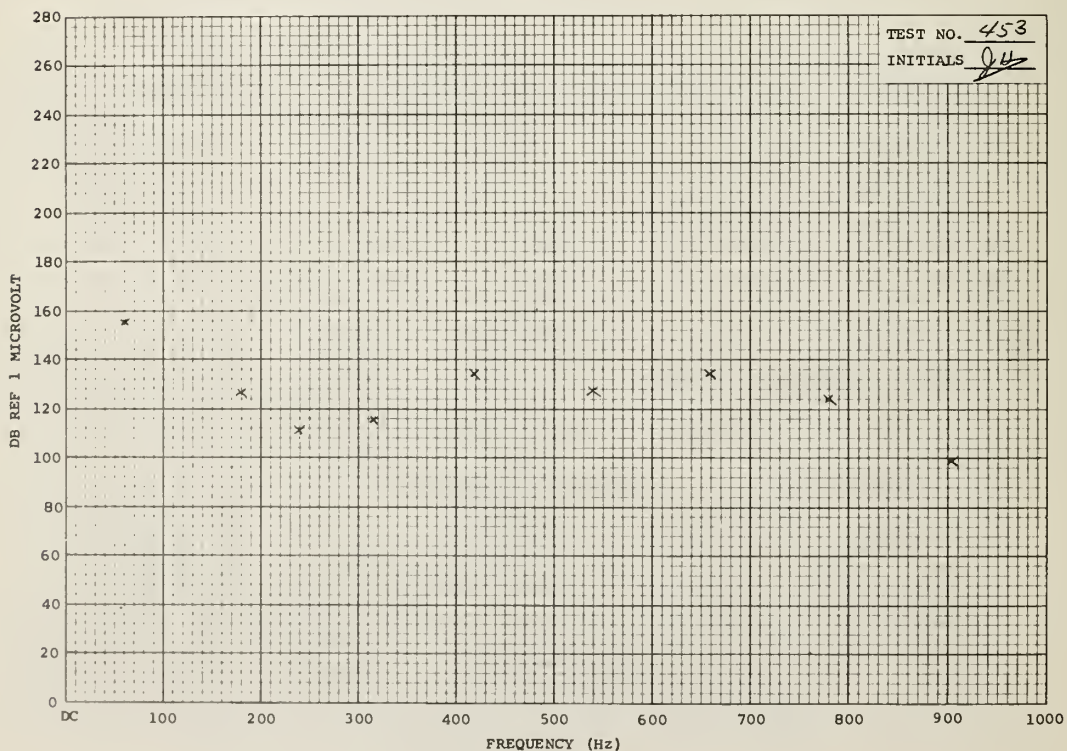
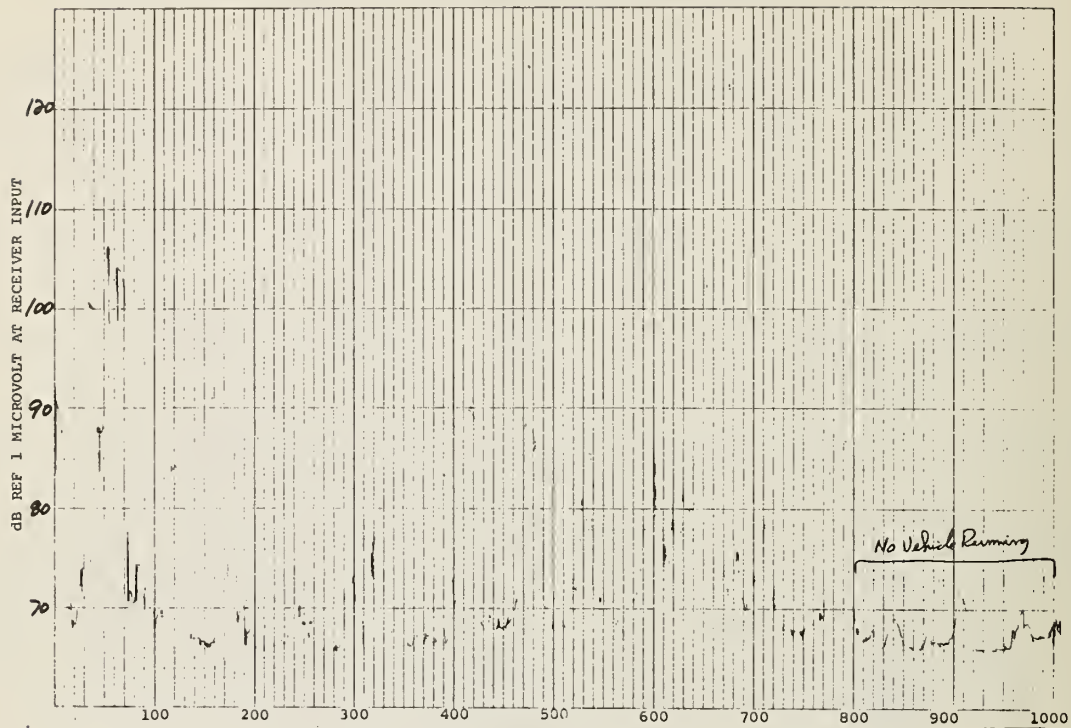


TEST NO. 453
TEST SPECIMEN FB
Ford

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 5 Hz
DATE 8-2-72

1505
CCJ

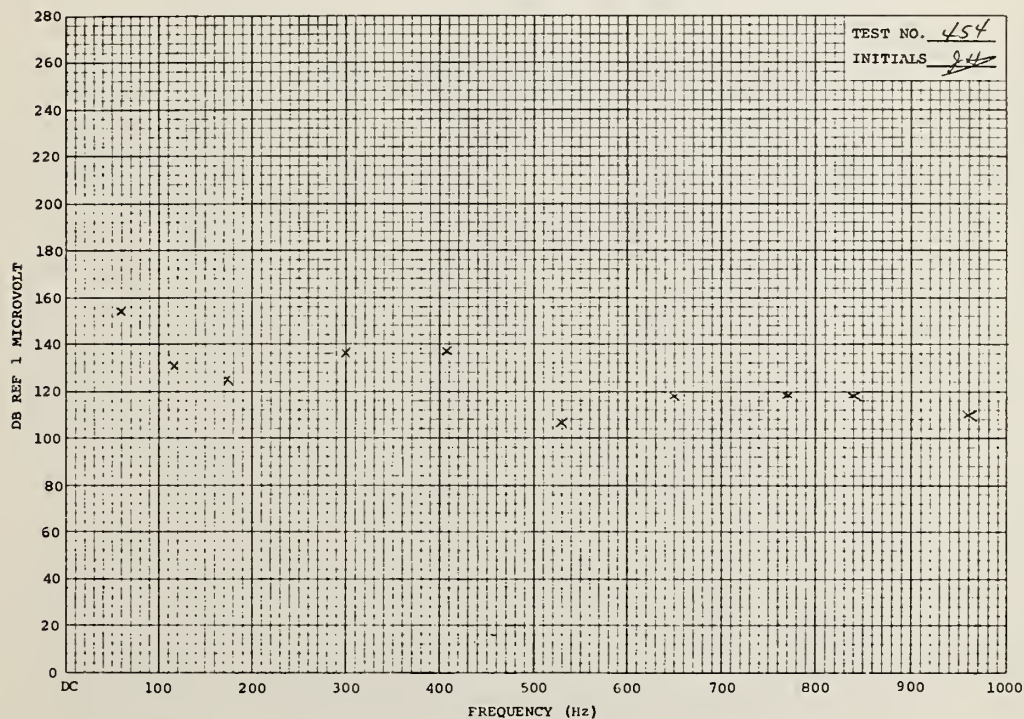


TEST NO. 454
TEST SPECIMEN Q13
Ford

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 5 Hz
DATE 8-2-72

1510
EE

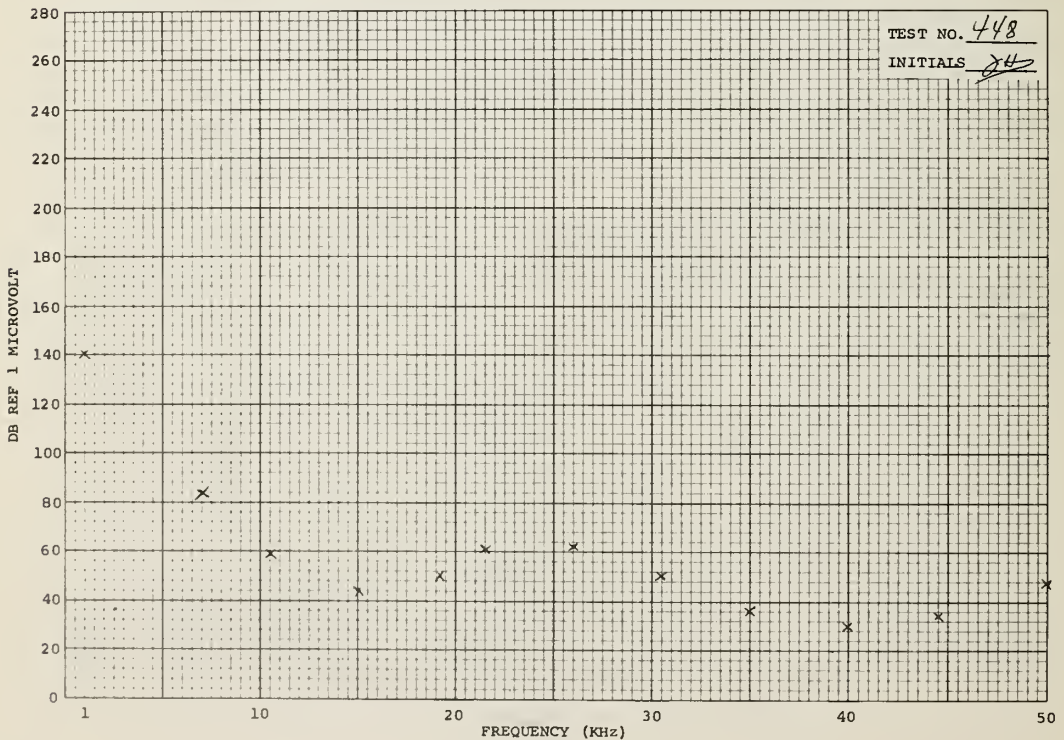
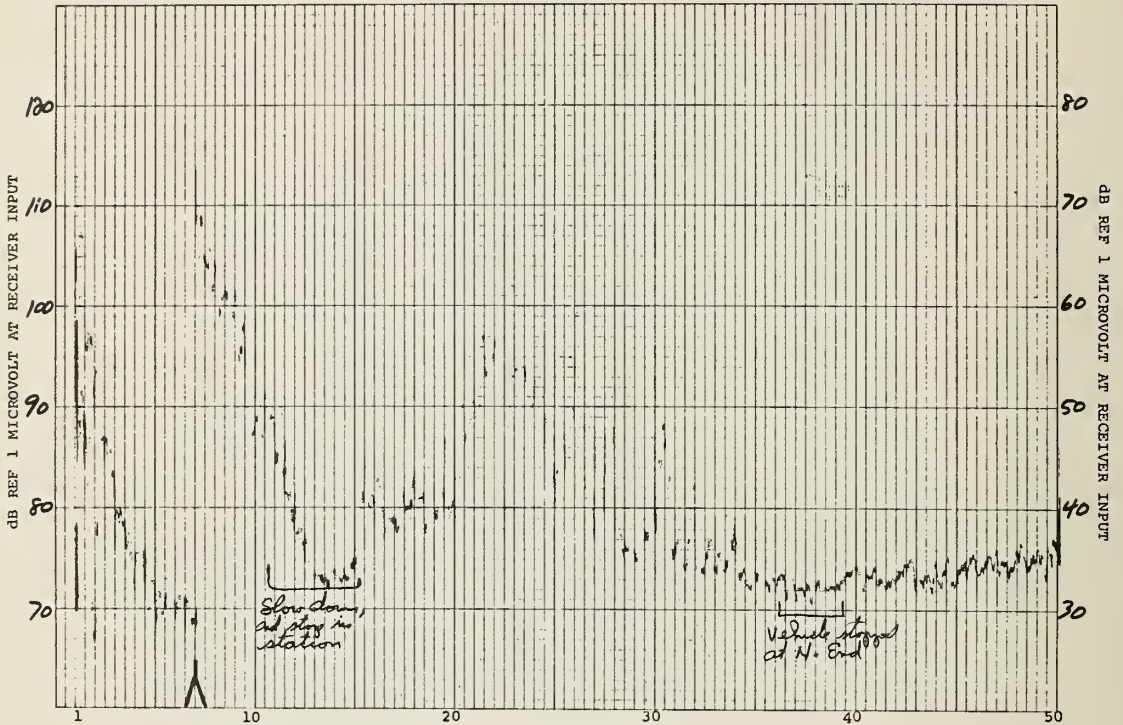


TEST NO. 448
 TEST SPECIMEN Φ B
Ford

TEST TYPE PLC
 TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
 DATE 8-2-72

1444
EE

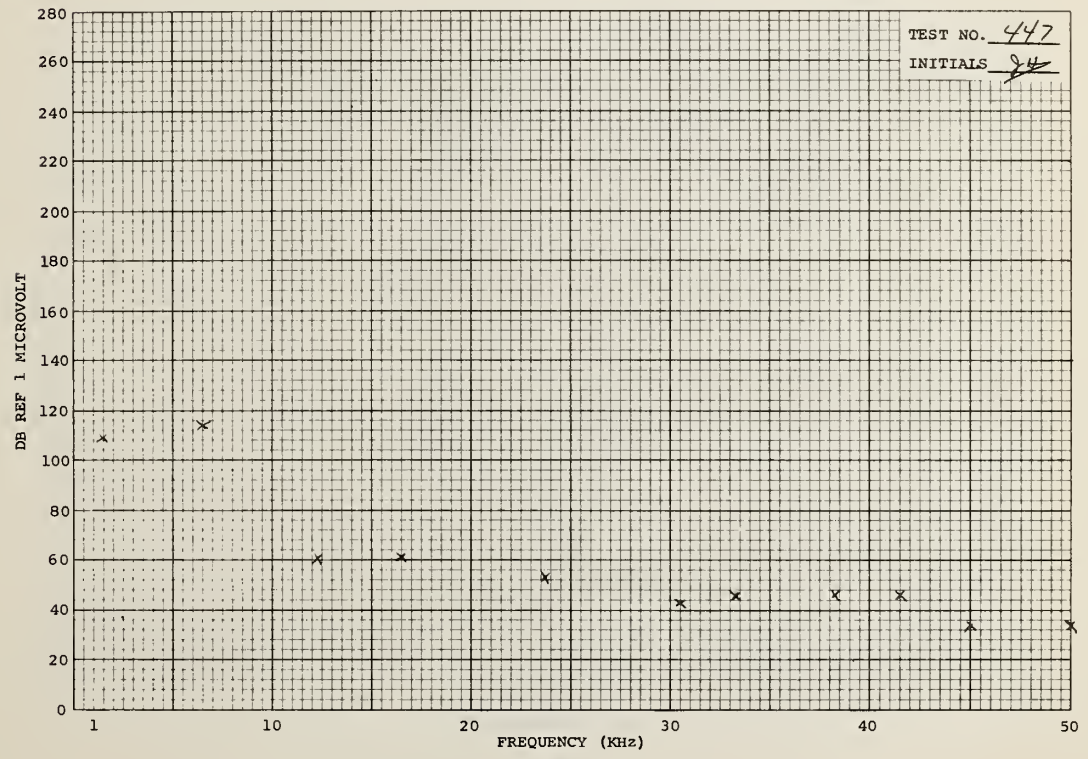
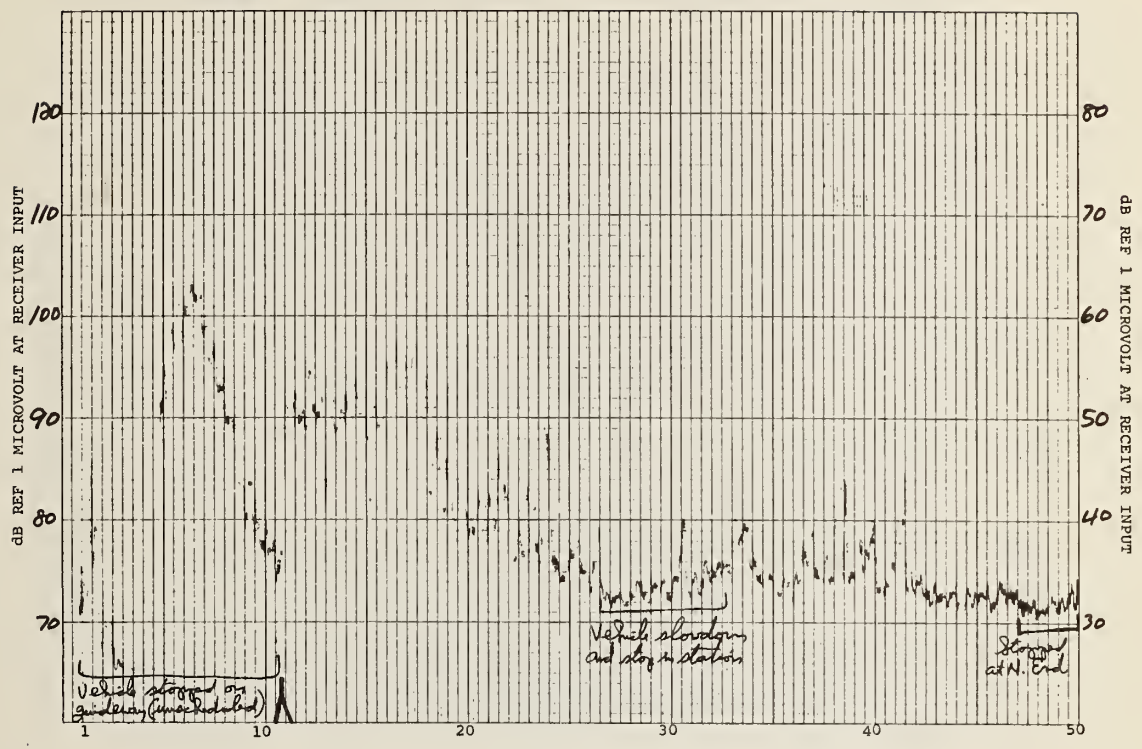


TEST NO. 447
 TEST SPECIMEN OB
Ford

TEST TYPE PLC
 TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
 DATE 8-2-72

1435
55

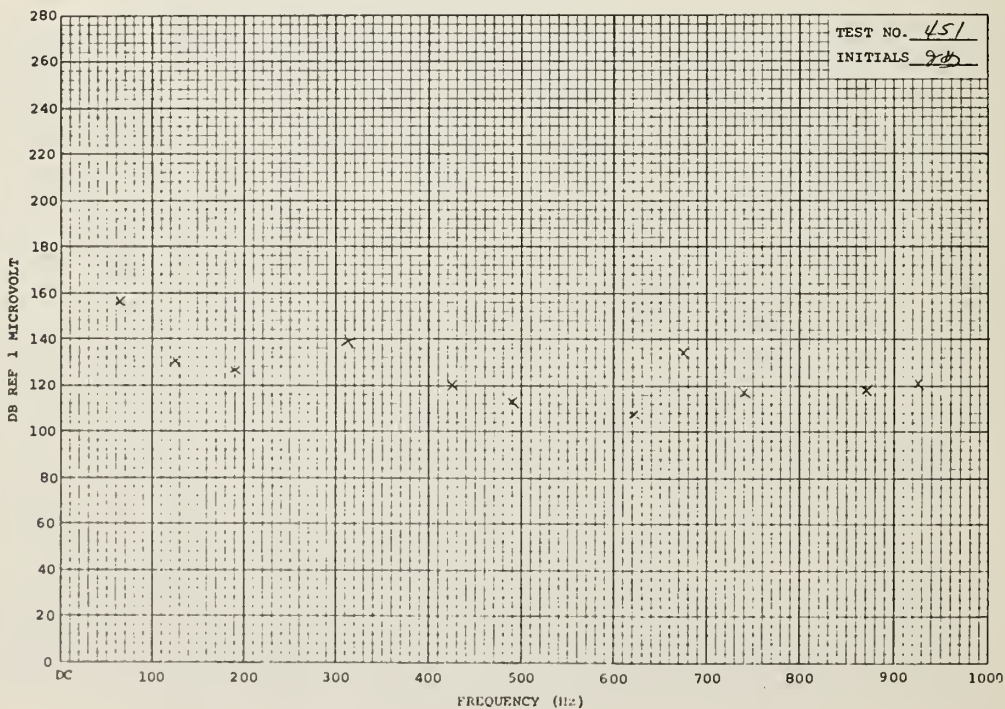


TEST NO. 451
TEST SPECIMEN OC
Ford

TEST TYPE PLC
TEST EQUIP. ENC-10

BANDWIDTH 5 Hz
DATE 8-2-72

1459
EFA

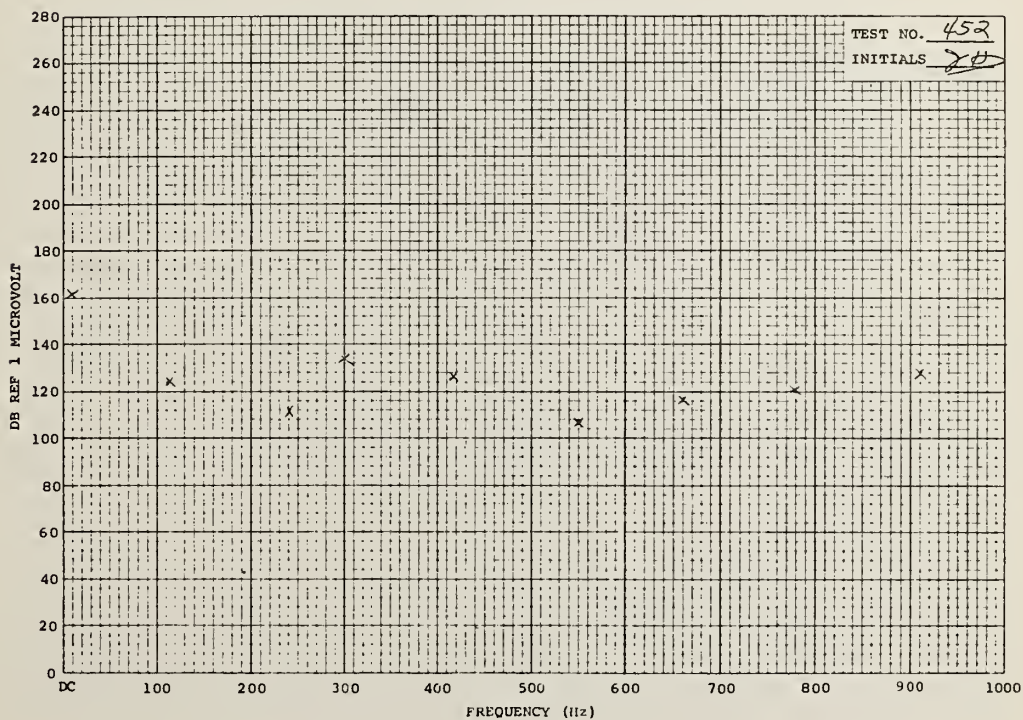
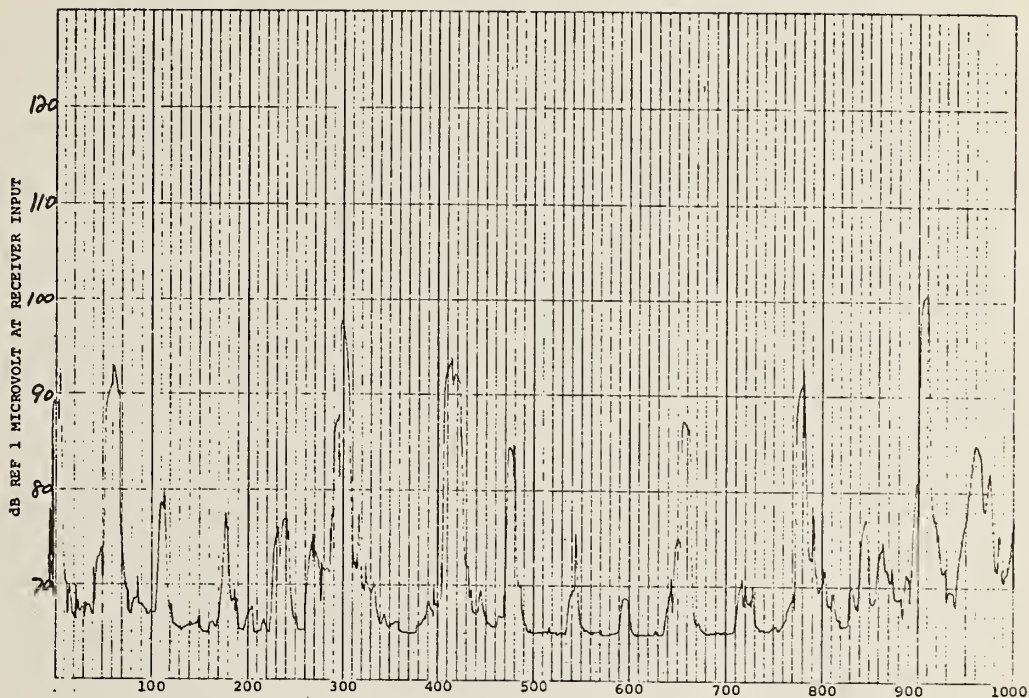


TEST NO. 452
TEST SPECIMEN QC
Ford

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 5 Hz
DATE 8-2-72

1502
SSJ



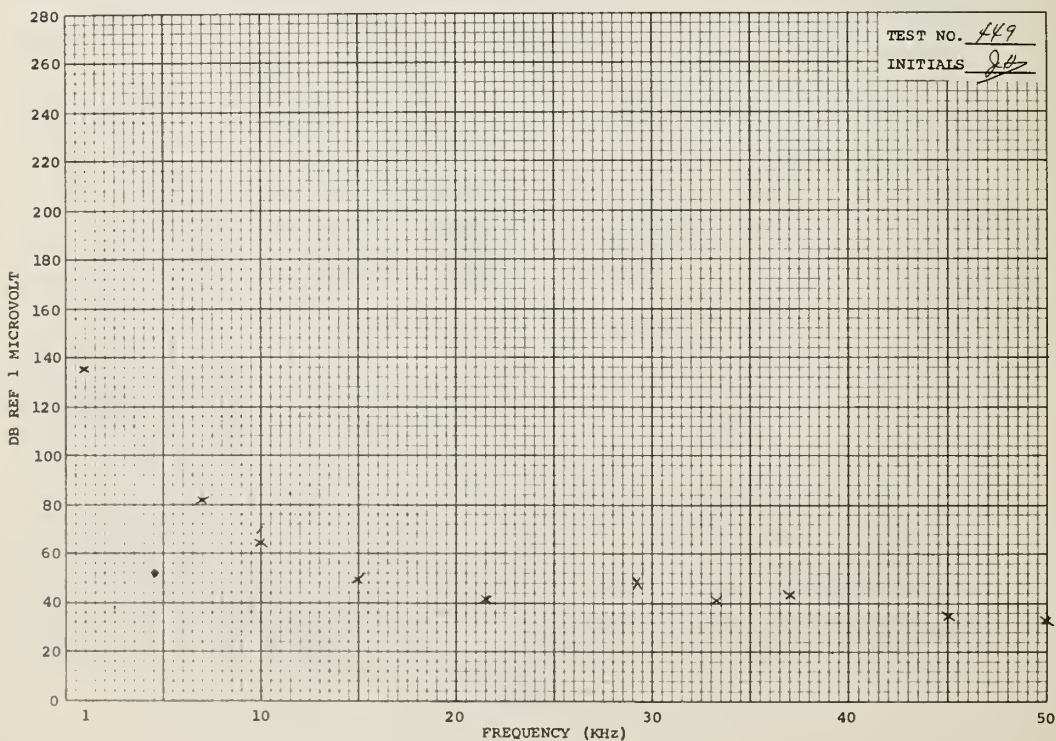
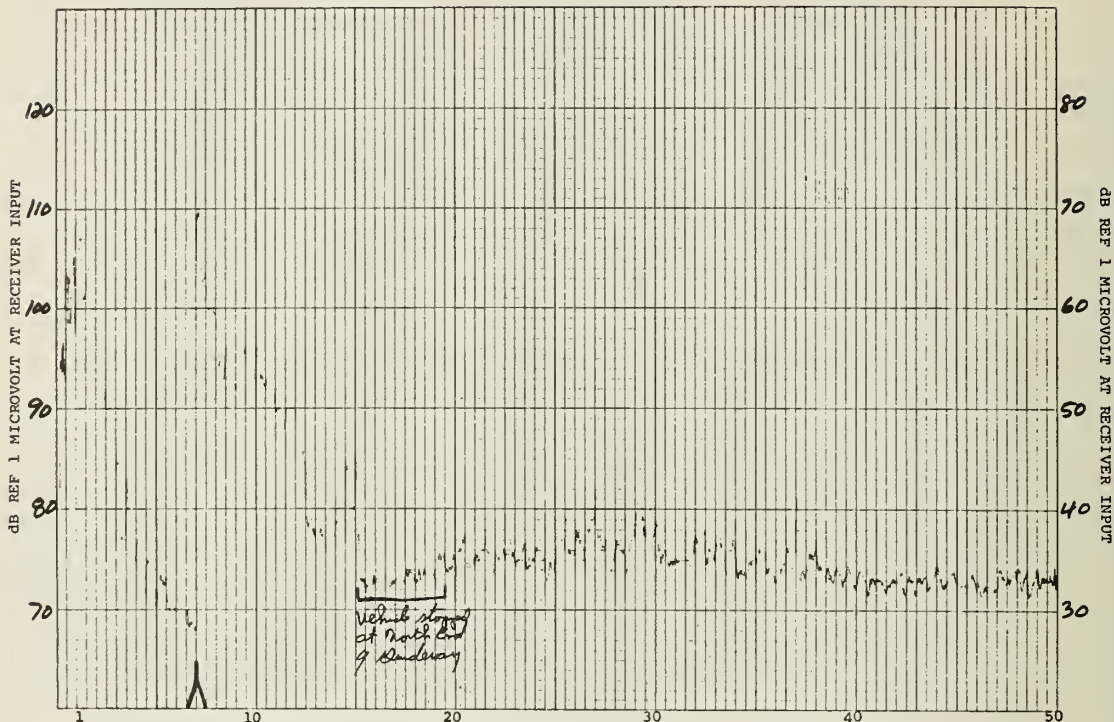
TEST NO. 452
INITIALS SSJ

TEST NO. 449
TEST SPECIMEN PC
Ford

TEST TYPE PLC
TEST EQUIP. ENC-10

BANDWIDTH 50 Hz
DATE 8-2-72

1449
EEA

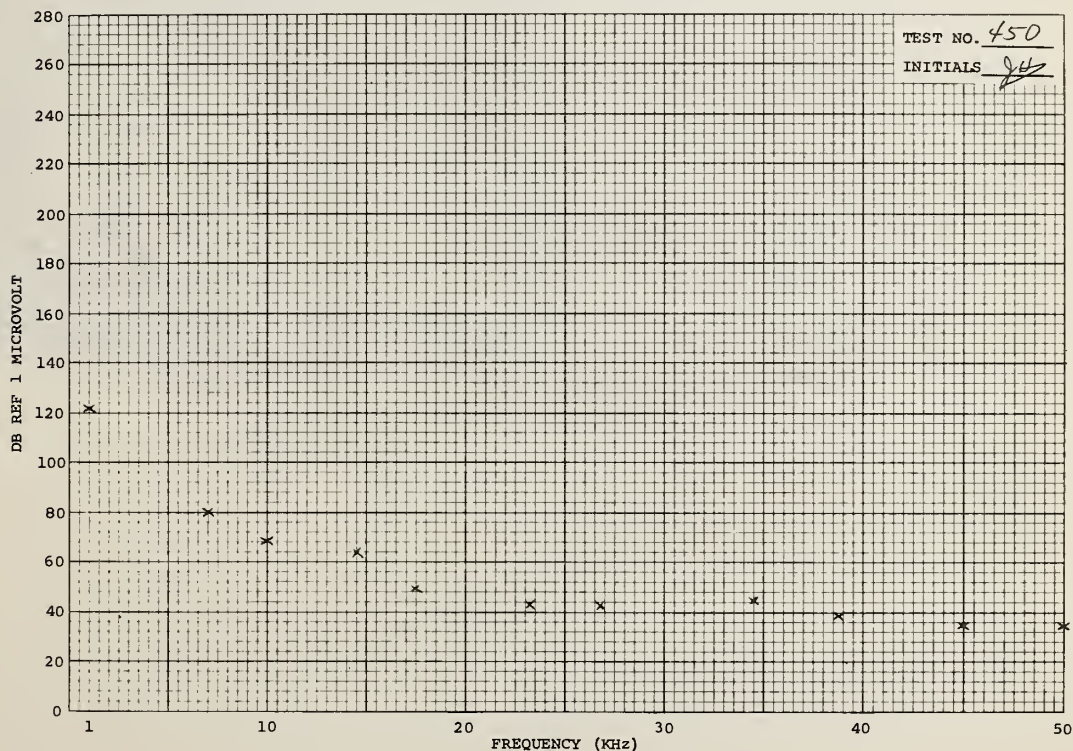
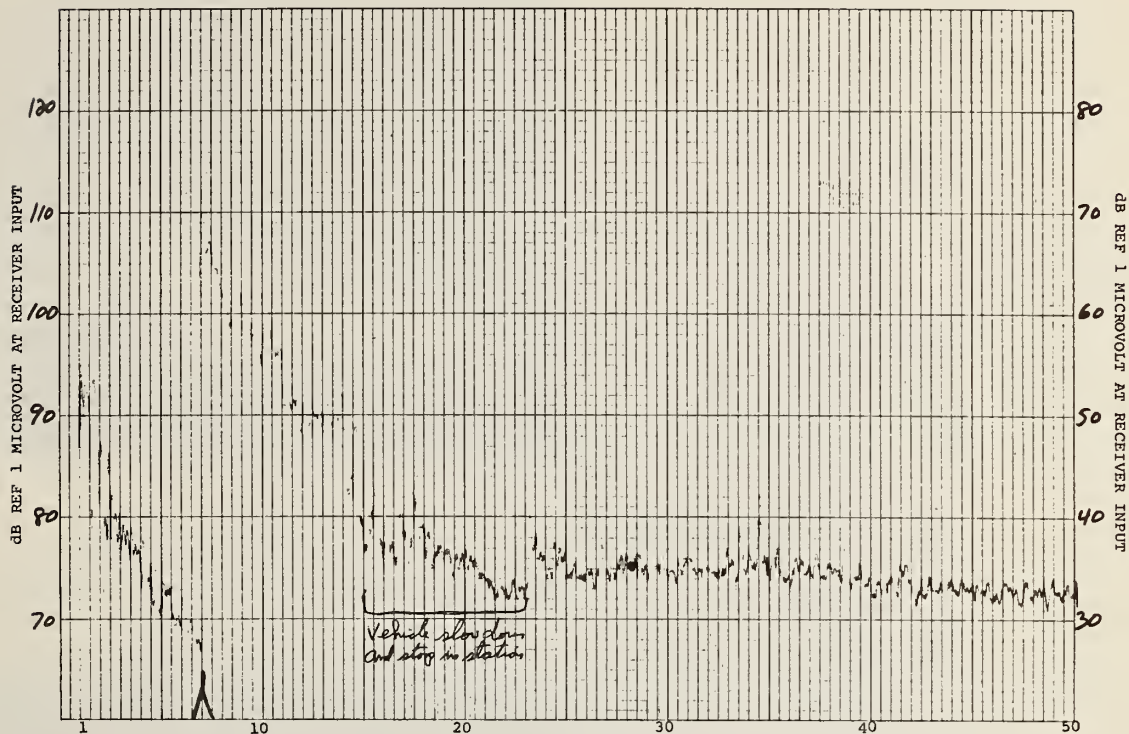


TEST NO. 450
 TEST SPECIMEN OC
Ford

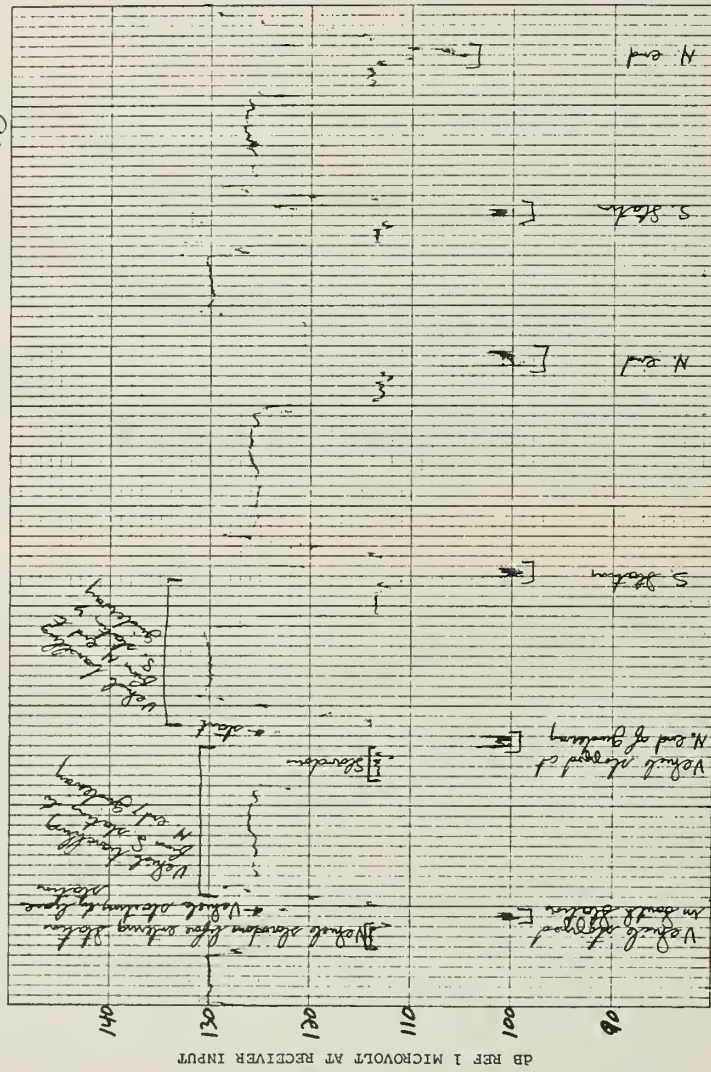
TEST TYPE PLC
 TEST EQUIP. EMC-10

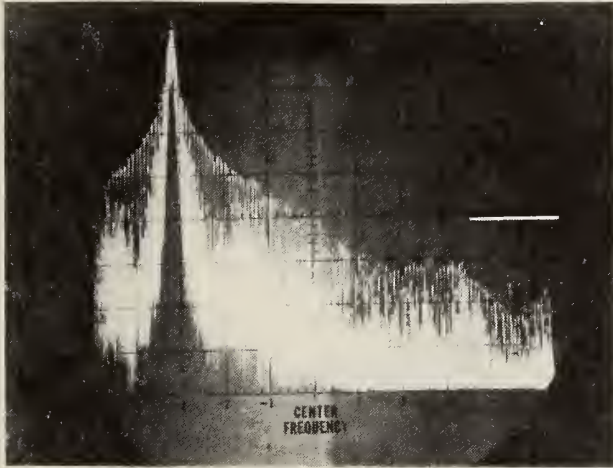
BANDWIDTH 50 Hz
 DATE 8-2-72

1453
 EEF



TEST NO. 457 TEST TYPE PLC BANDWIDTH 0-50K Widband 1503
 TEST SPECIMEN Q A TEST EQUIP. ENC-10 DATE 8-3-78 1530
Ford Fig





f_c
150 KHz

Test No. 459

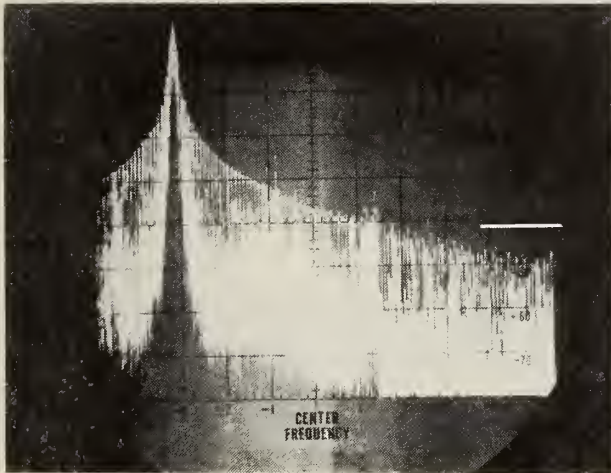
Power Line: $\emptyset B$

Freq. Scan: 50 KHz/Div.

Time Scan: 0.1 Sec/Div.

Amplitude: Center Gradicule
line is 95 dB μ V/MHz
(10 dB/Div.)

Vehicle travelling from south
to north on guideway.



f_c
150 KHz

Test No. 461

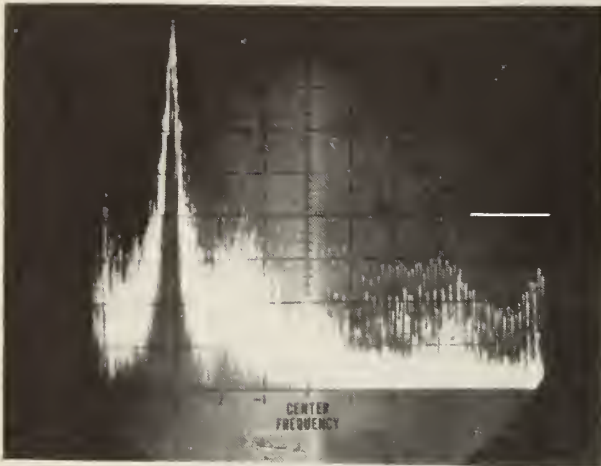
Power Line: $\emptyset B$

Freq. Scan: 50 KHz/Div.

Time Scan: 0.1 Sec/Div.

Amplitude: Center Gradicule
Line is 95dB μ V/MHz
(10dB/Div.)

Vehicle travelling from north
to south on guideway.



f_c
150 KHz

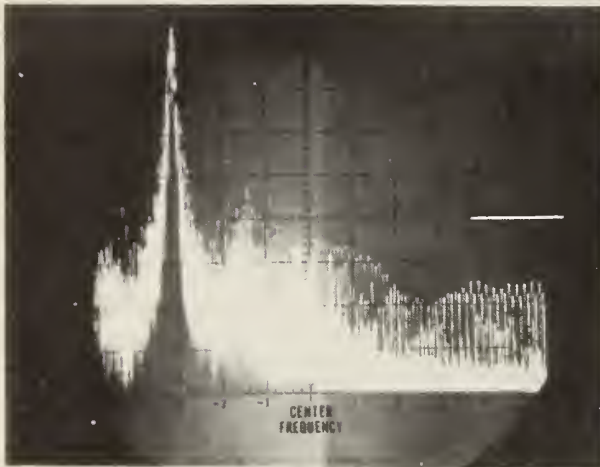
Test No. 462

Power Line: ØB

Freq. Scan: 50 KHz/Div.
Time Scan: 0.1 Sec/Div.

Amplitude: Center Gradicule
Line is 95dB μ V/MHz

Vehicle slow down before
entering south station.



f_c
150 KHz

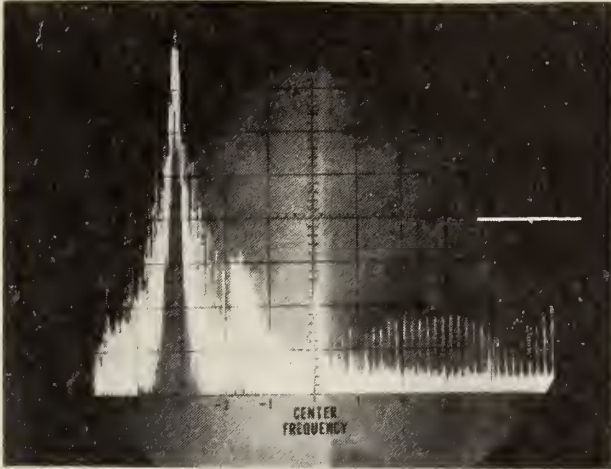
Test No. 460

Power Line: ØB

Freq. Scan: 50KHz/Div.
Time Scan: 0.1 Sec/Div.

Amplitude: Center Gradicule
Line is 95dB μ V/MHz
(10dB/Div.)

Vehicle slow down before
stopping at north end of
guideway.



f_c
150 KHz

Test No. 463

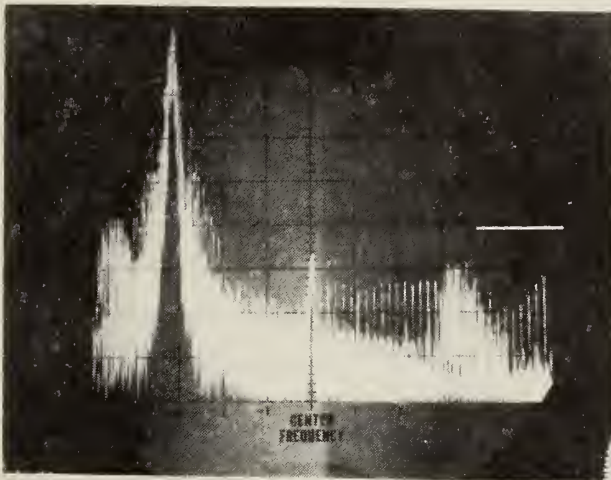
Power Line: $\emptyset B$

Freq. Scan: 50 KHz/Div.

Time Scan: 0.1 Sec/Div.

Amplitude: Center Gradicule
Line is 85dB μ V/MHz
(10dB/Div.)

Vehicle stopped in south station.



f_c
150 KHz

Test No. 458

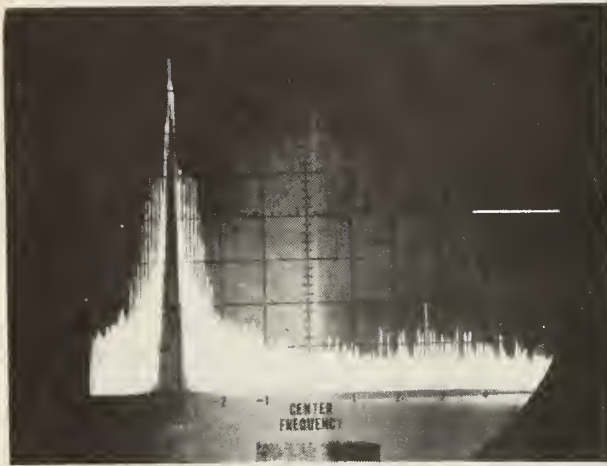
Power Line: $\emptyset B$

Freq. Scan: 50 KHz/Div.

Time Scan: 0.1 Sec/Div.

Amplitude: Center Gradicule
Line is 85dB μ V/MHz
(10dB/Div.)

Vehicle stopped at north end
of guideway.



f_c
150 KHz

Test No. 464

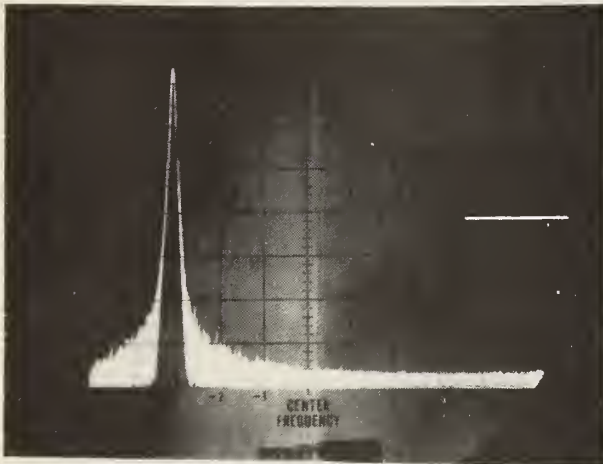
Power Line: $\emptyset B$

Freq. Scan: 50 KHz/Div.

Time Scan: 0.1 Sec/Div.

Amplitude: Center Gradicule
Line is 85dB μ V/MHz
(10dB/Div.)

Noise when Ford PRT System is
shut down.



f_c
150 KHz

Test No. 465

Freq. Scan: 50 KHz/Div.

Amplitude: Center Gradicule
Line is 85dB μ V/MHz
(10dB/Div.)

Instrumentation Ambient

APPENDIX C

POWER LINE CONDUCTION MEASUREMENTS DATA

This appendix contains data charts for test No. 335 through 350. The charts are presented in order of phase -- A, B, C and neutral for ease of analysis, rather than in the numerical order as the tests were performed.

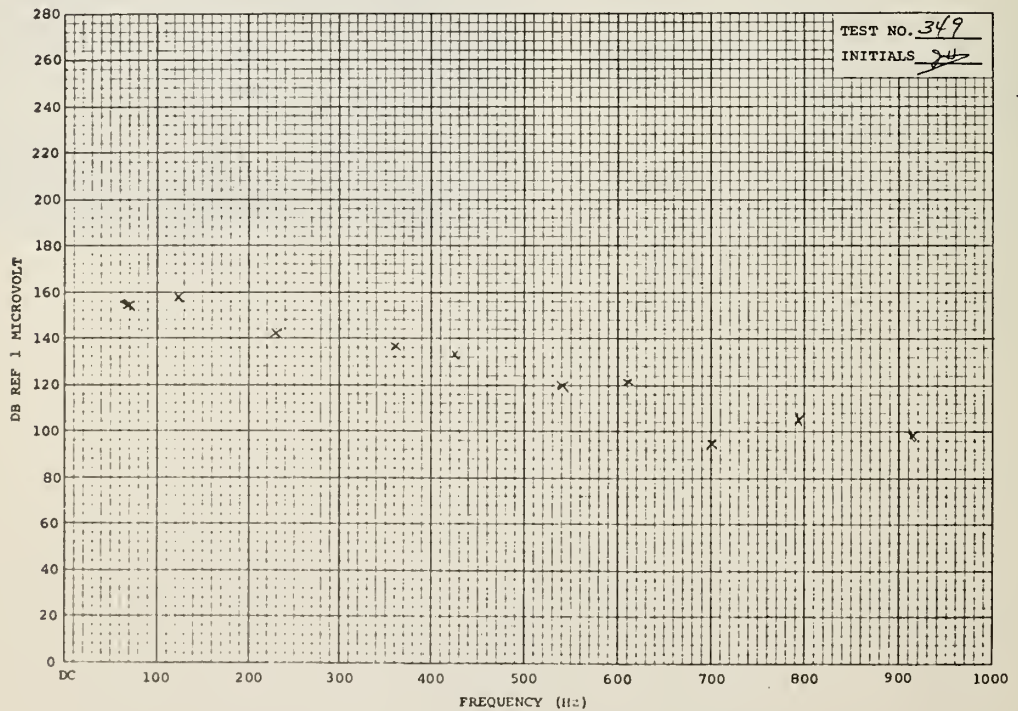
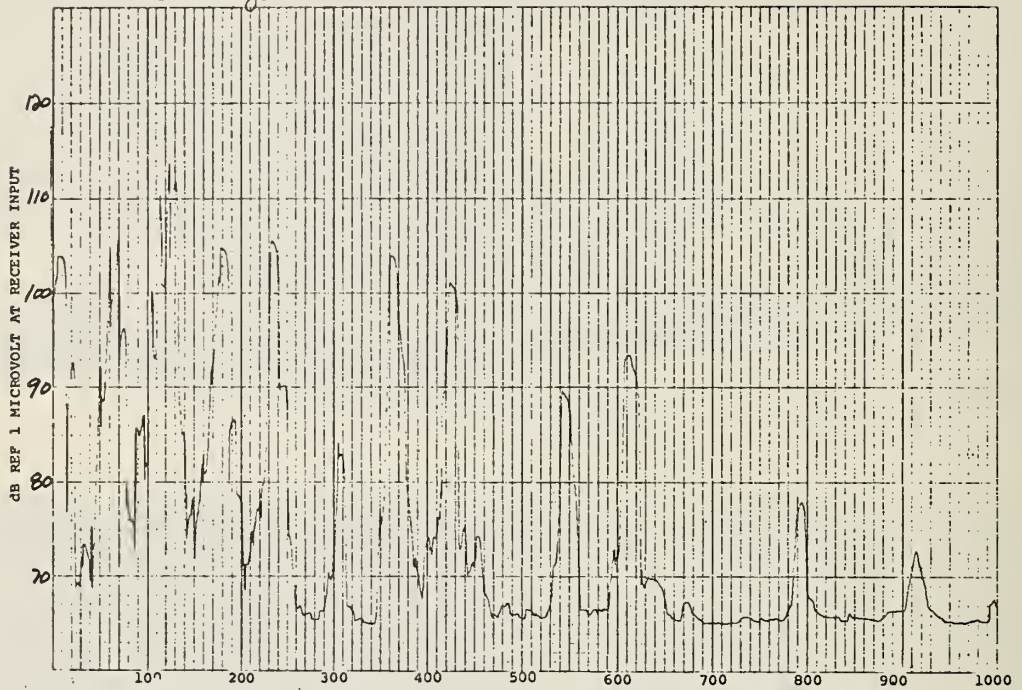
TEST NO. 349
TEST SPECIMEN QA

TEST TYPE PLC
TEST EQUIP. ENC-10

BANDWIDTH 5 Hz
DATE 7-31-72

1628
SFJ

Dastanegor

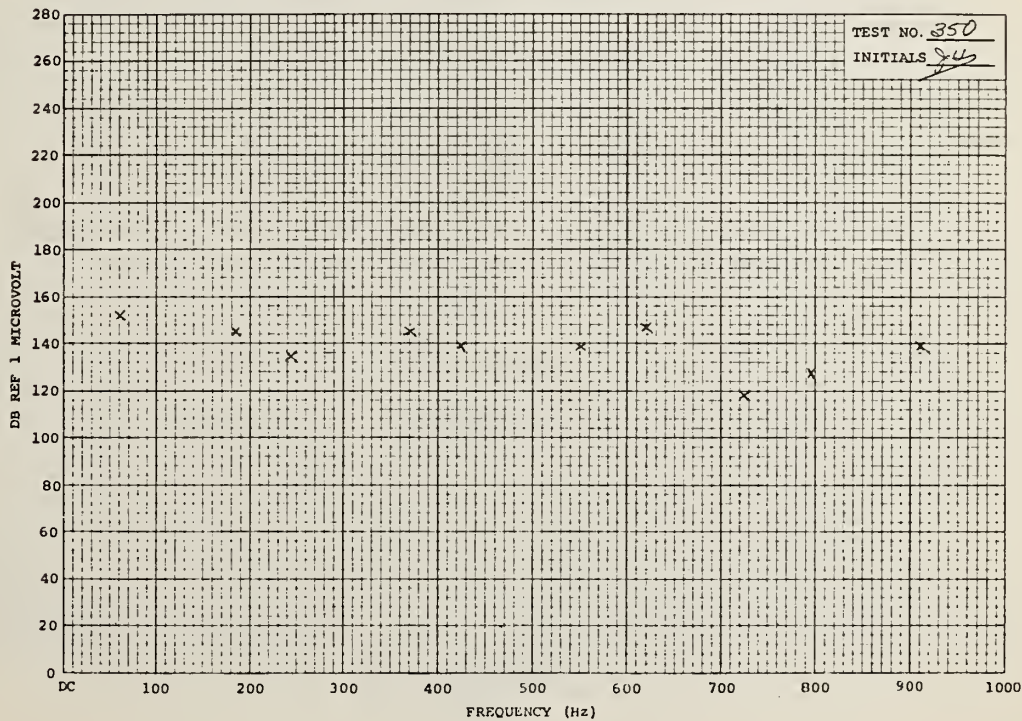
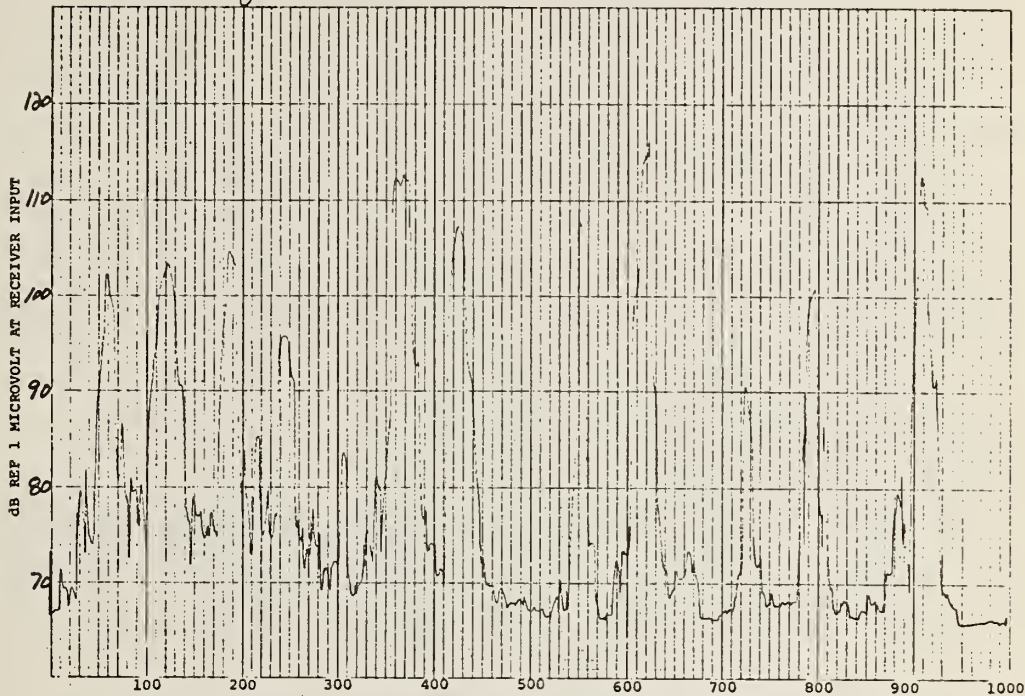


TEST NO. 350
TEST SPECIMEN Q.A.
Daakareyon

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 5 Hz
DATE 7-21-72

1635
JS

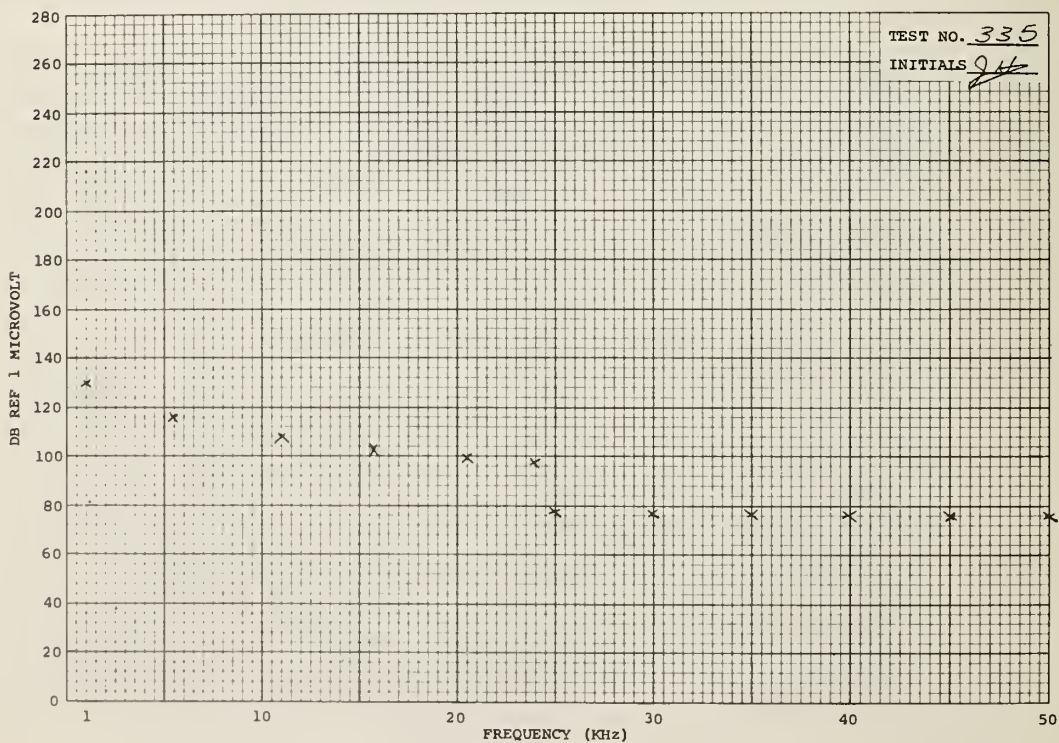
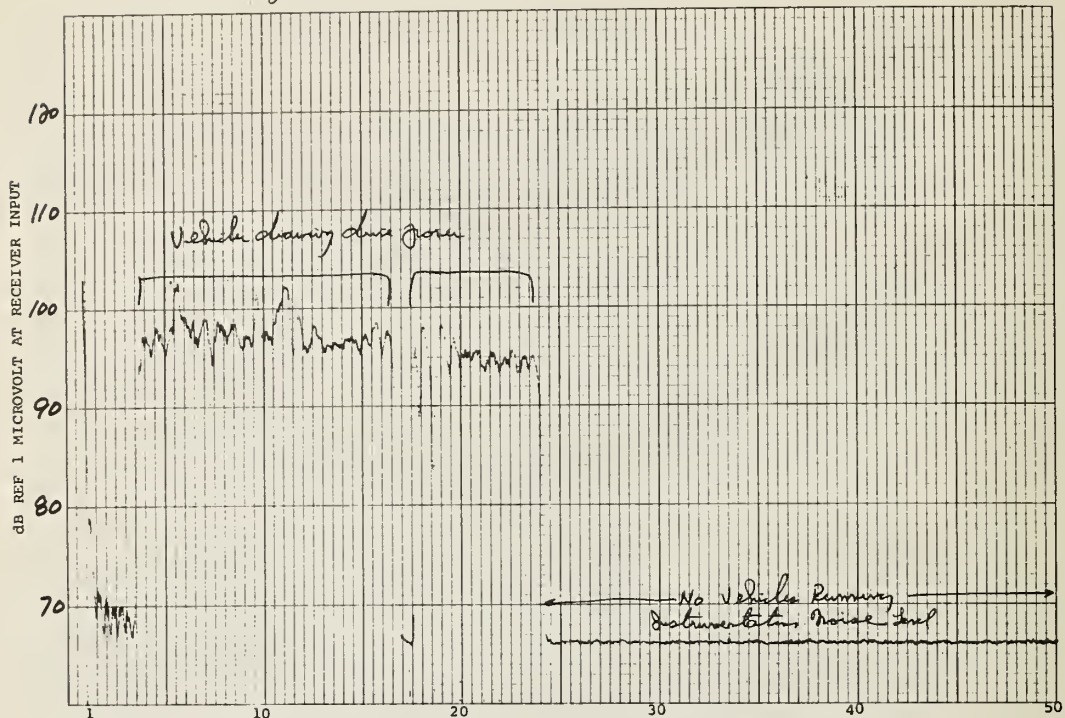


TEST NO. 335
 TEST SPECIMEN GA
Dastaveyor

TEST TYPE PLC
 TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
 DATE 7-31-72

1537
 JRC

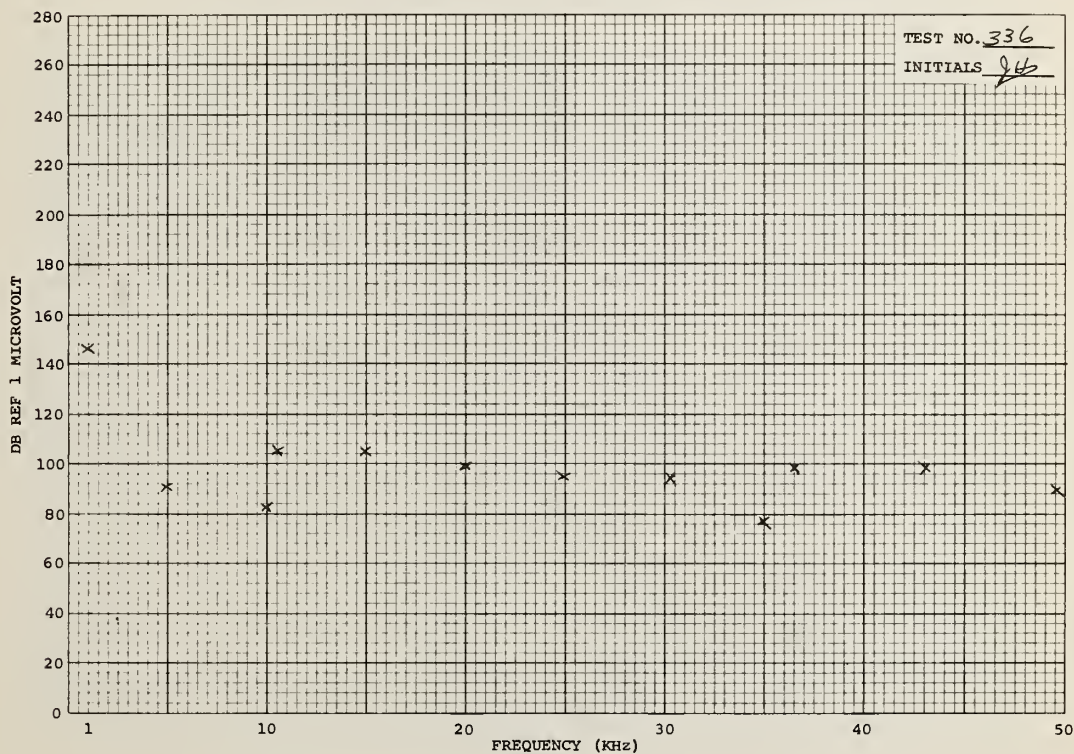
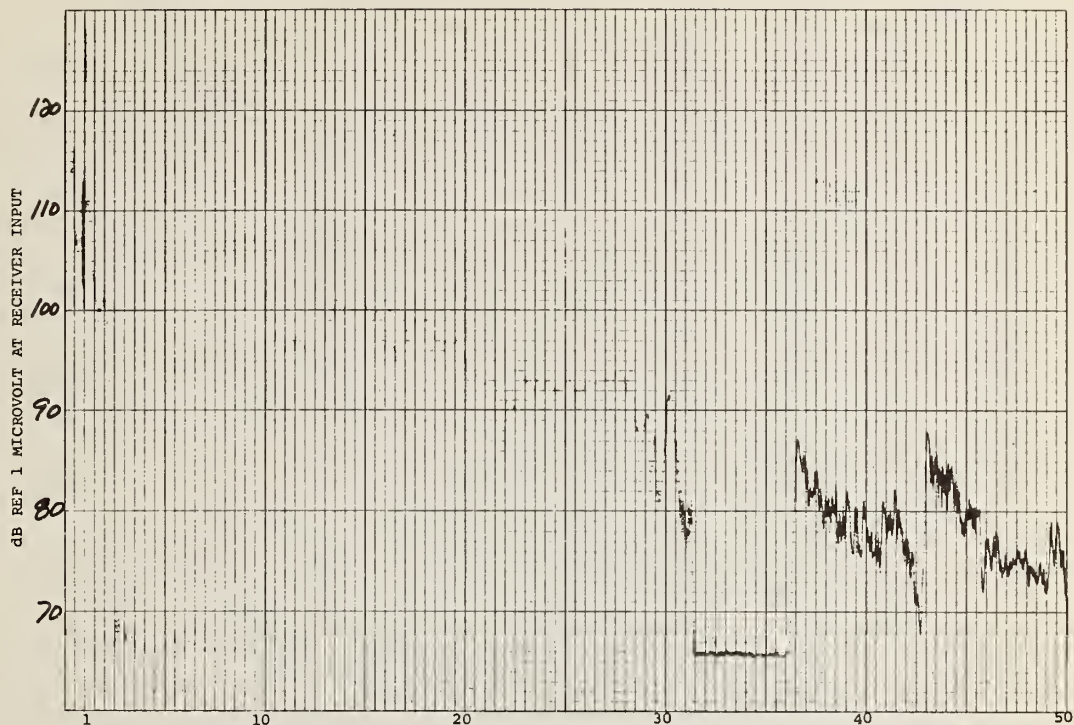


TEST NO. 336
TEST SPECIMEN 0A
Dashaway

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 50Hz
DATE 7-31-72

1542
EEJ



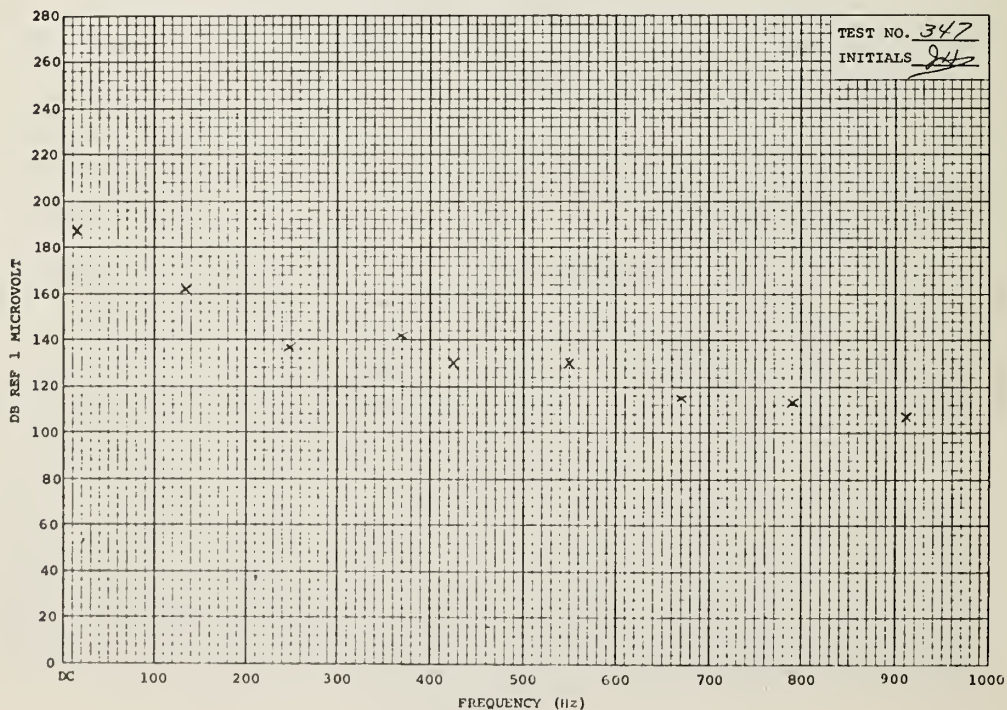
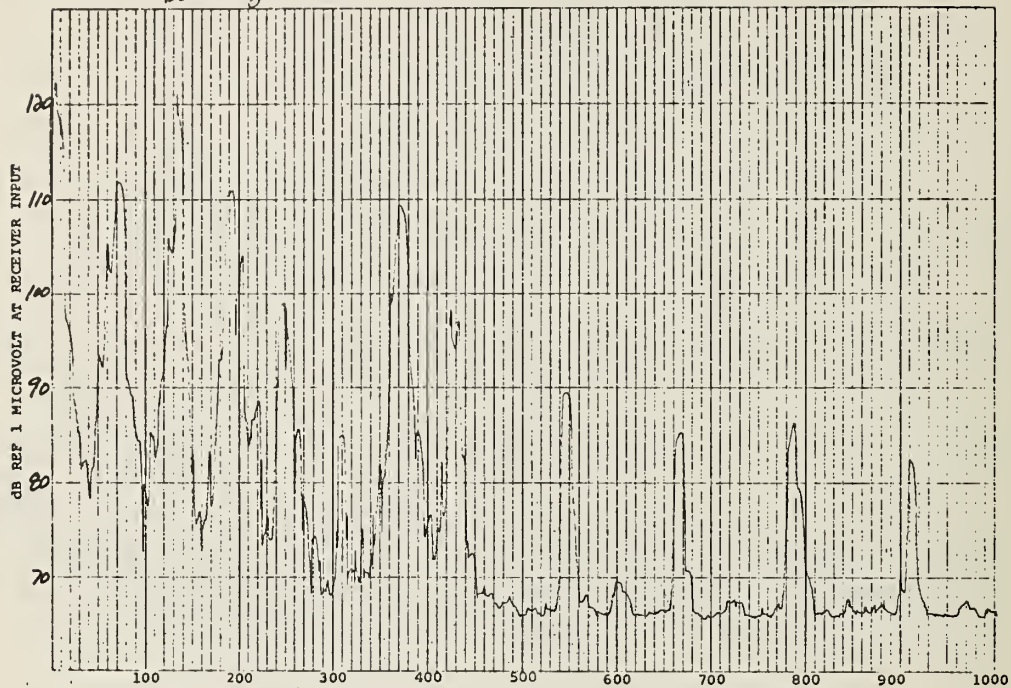
TEST NO. 347
TEST SPECIMEN QB

TEST TYPE PLC
TEST EQUIP. ENC-10

BANDWIDTH 5 Hz
DATE 2-21-72

162P
85

Doakaveya



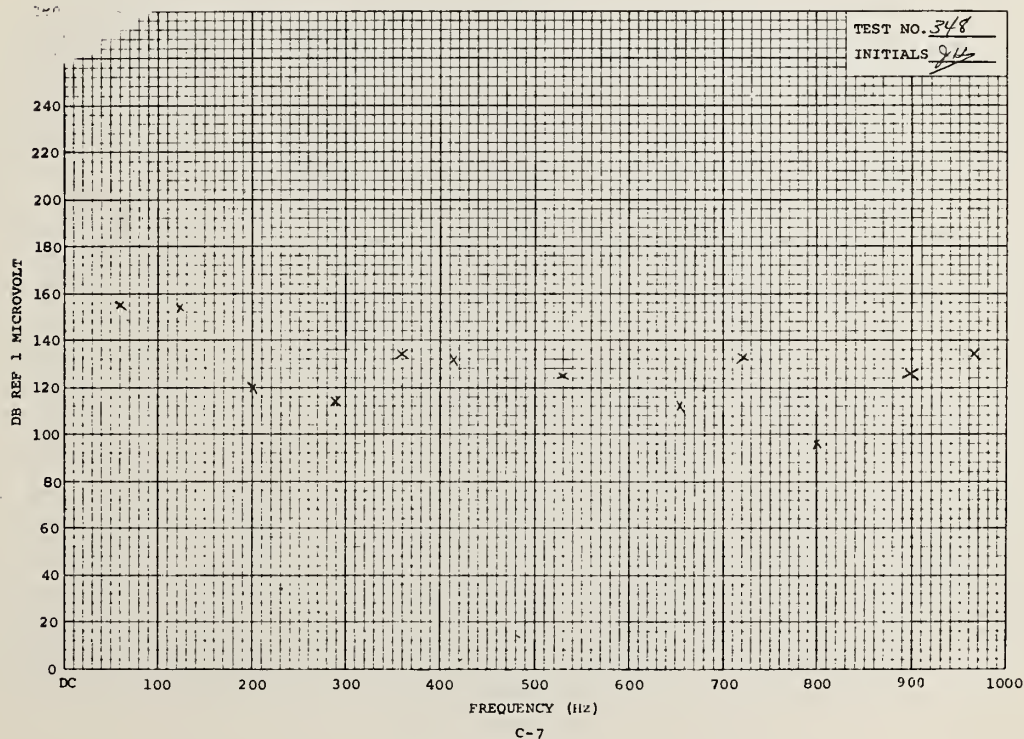
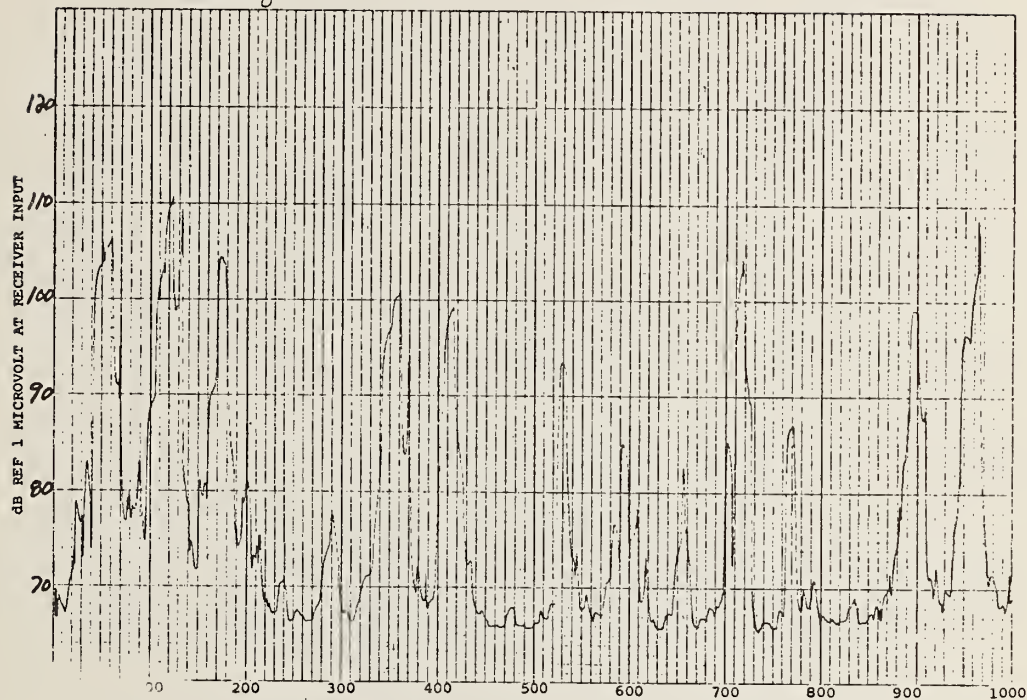
TEST NO. 348
TEST SPECIMEN PB

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 5 Hz
DATE 7-31-72

1670
88

Dalavayn

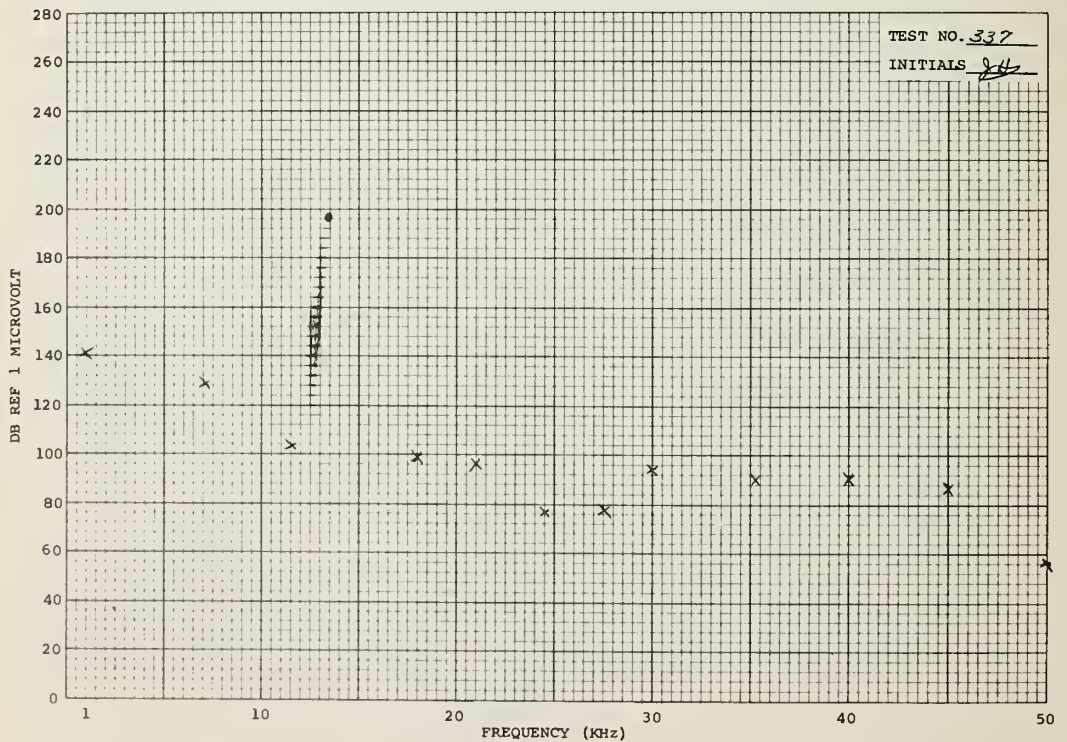
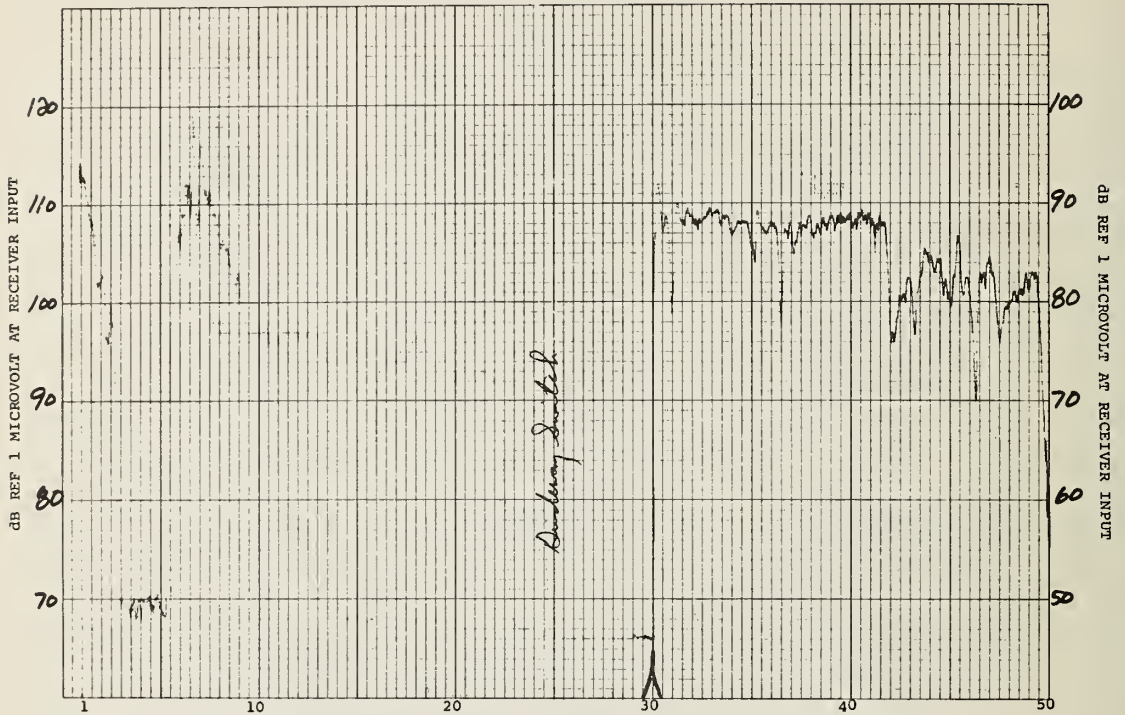


TEST NO. 337
TEST SPECIMEN Ø B
Dachavayor

TEST TYPE PLC
TEST EQUIP. ENC-10

BANDWIDTH 50 Hz
DATE 7-31-78

1546
SE



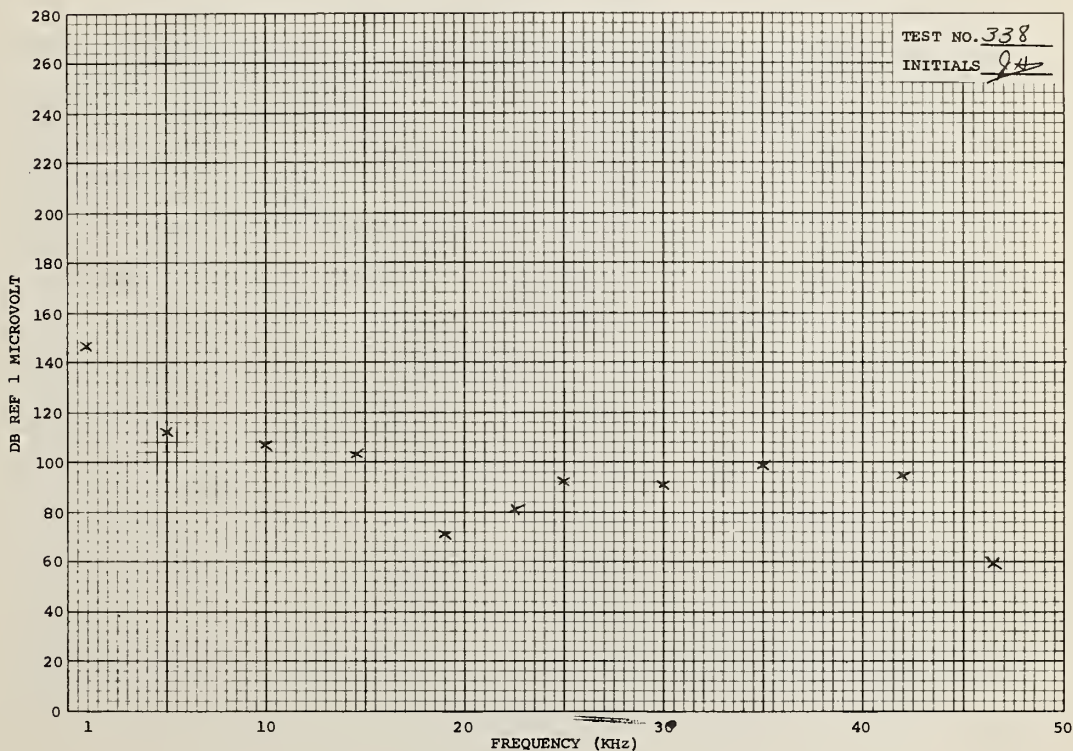
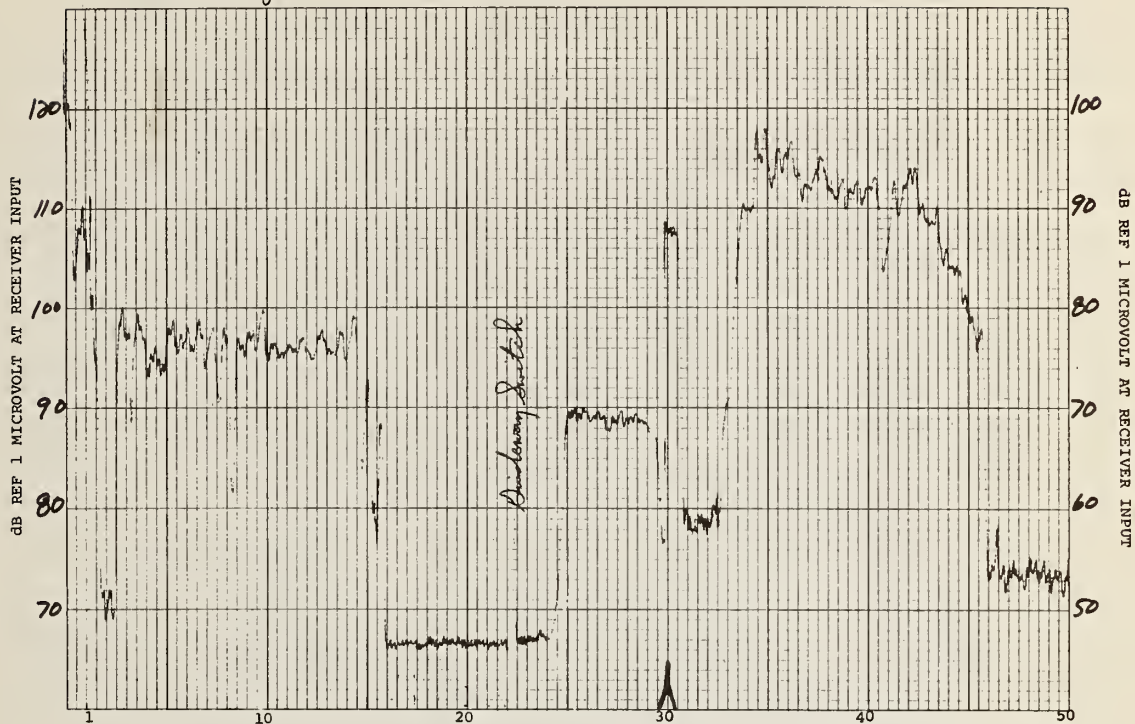
TEST NO. 338
TEST SPECIMEN Ø B

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
DATE 7-31-72

1550
SA

Dashaway



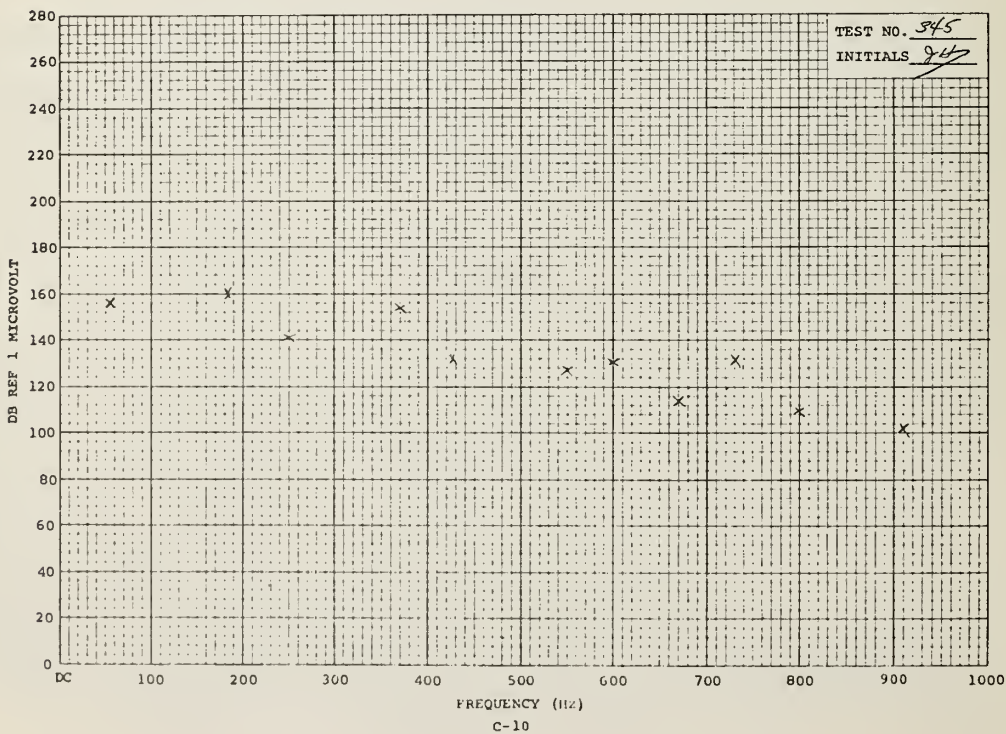
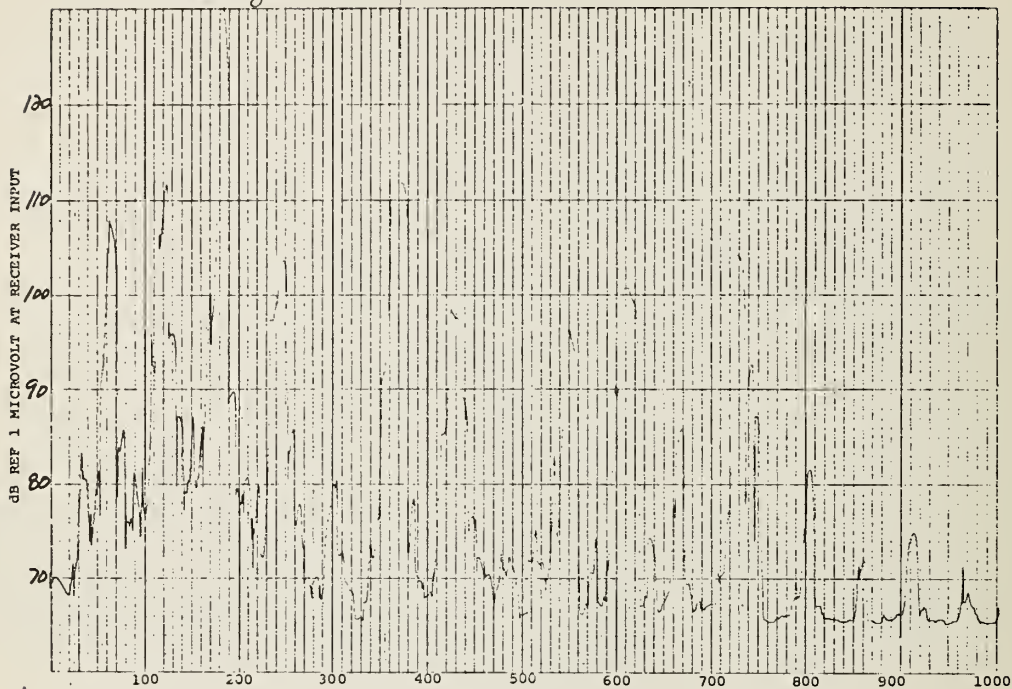
TEST NO. 345
TEST SPECIMEN QC

TEST TYPE PLC
TEST EQUIP. FNC-10

BANDWIDTH 5 Hz
DATE 7-31-72

1623
88

Dashawaga



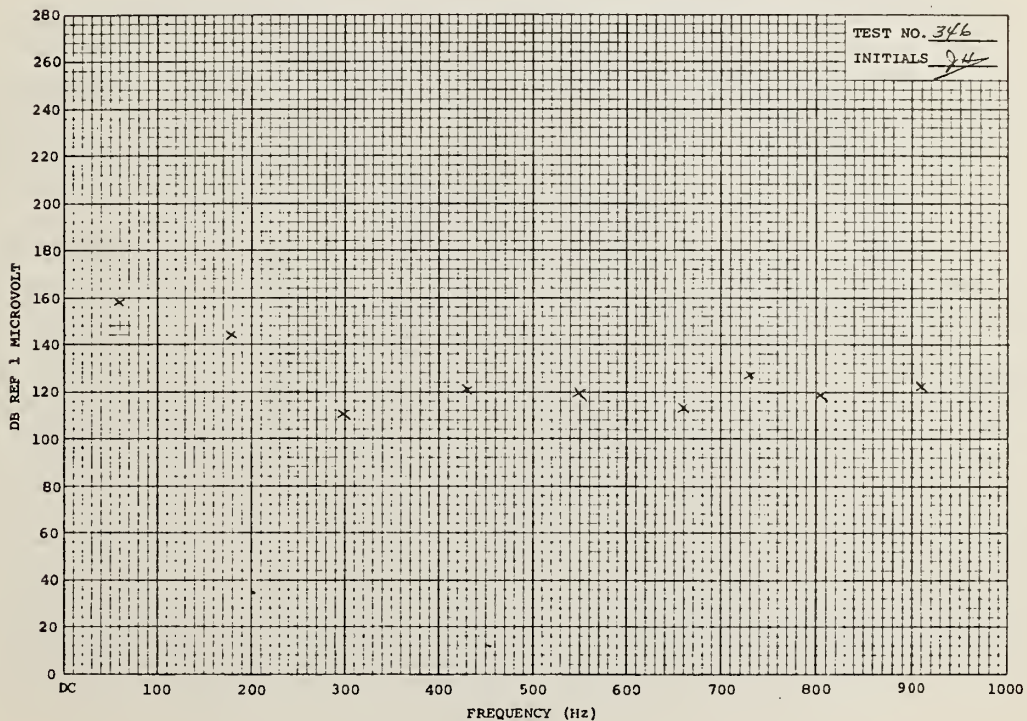
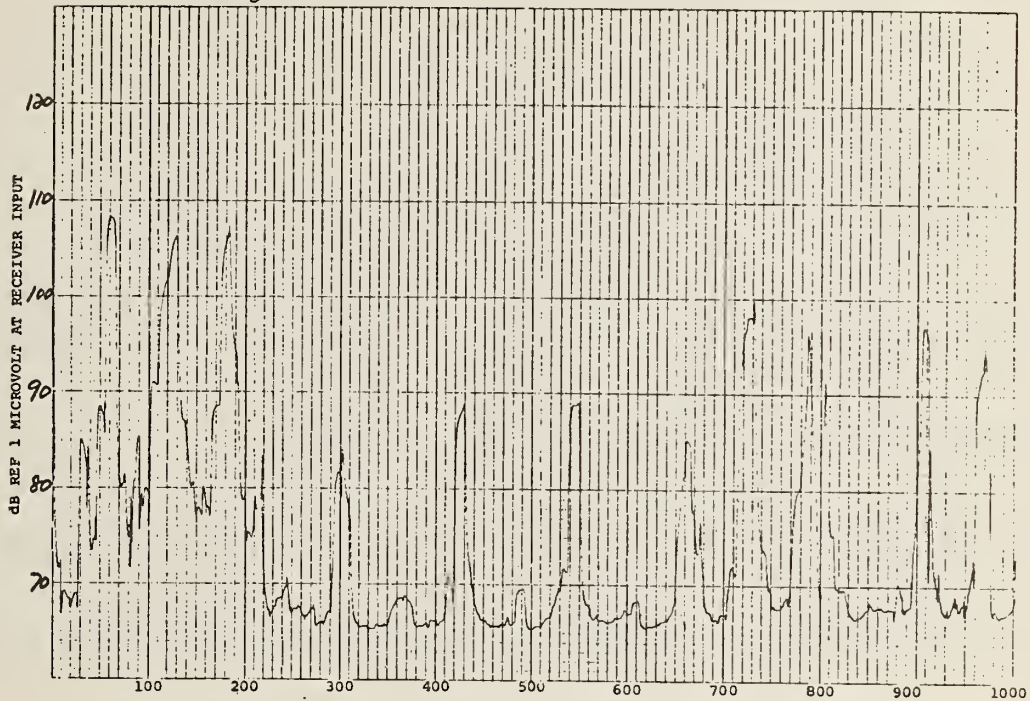
TEST NO. 346
TEST SPECIMEN BC

TEST TYPE PLC
TEST EQUIP. ENC-10

BANDWIDTH 5 Hz
DATE 7-31-72

1625
Ed

Drahovec

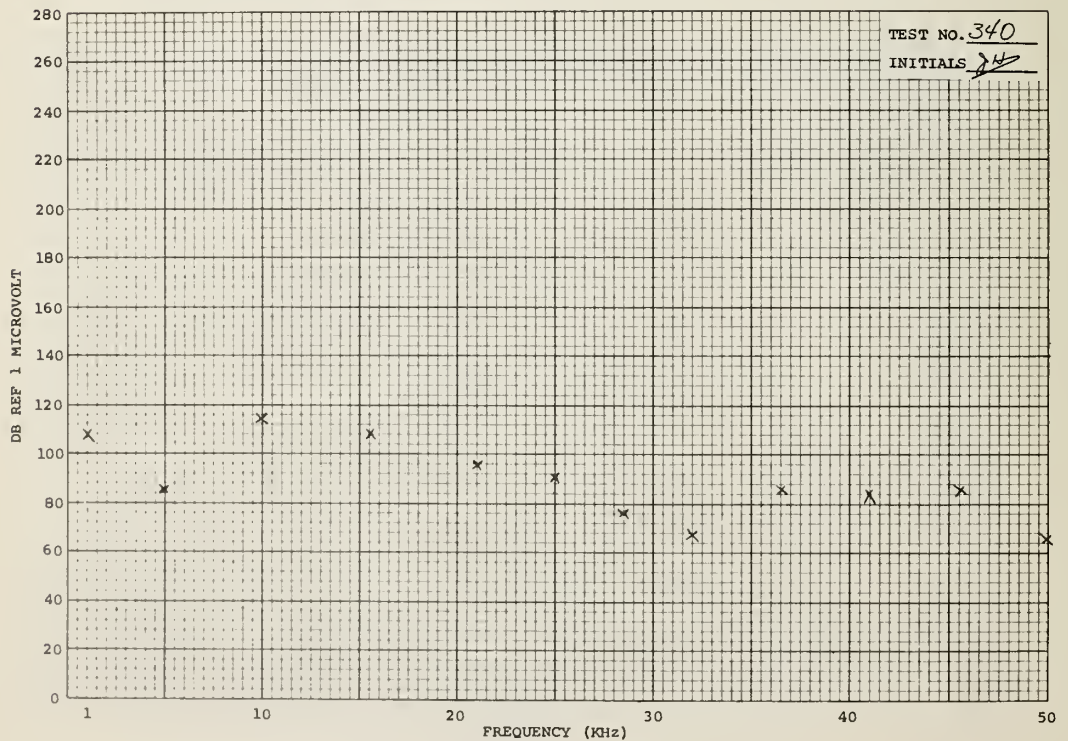


TEST NO. 339
TEST SPECIMEN QC
Dastavey

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
DATE 7-31-72

1554
EG

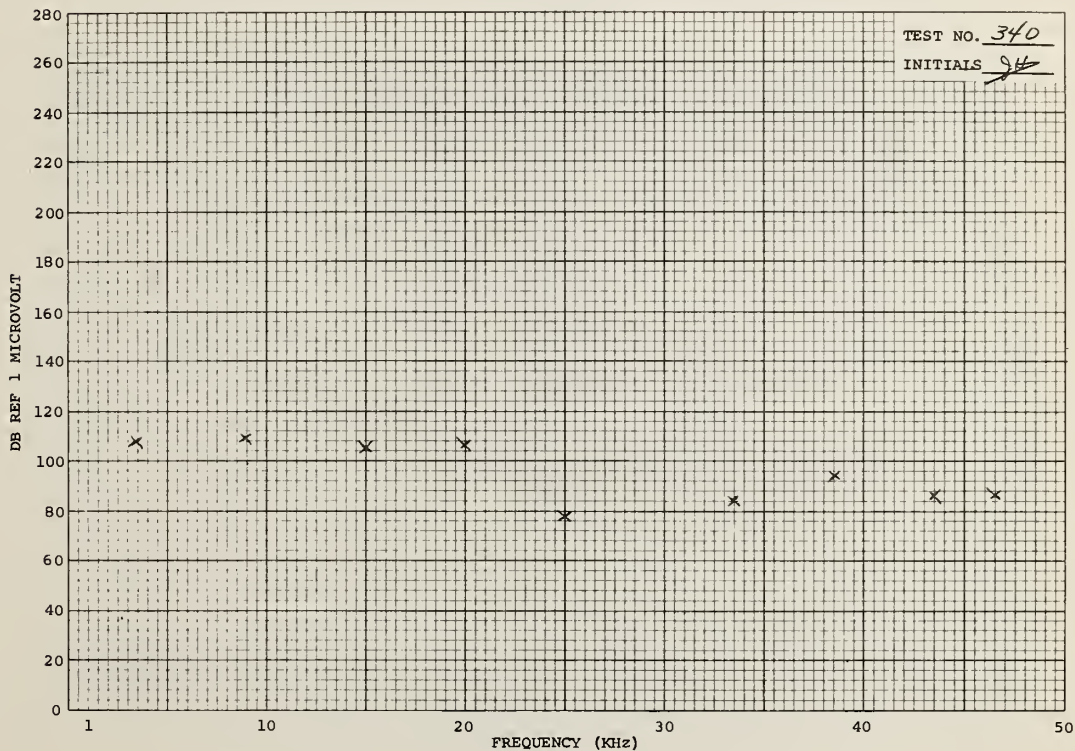
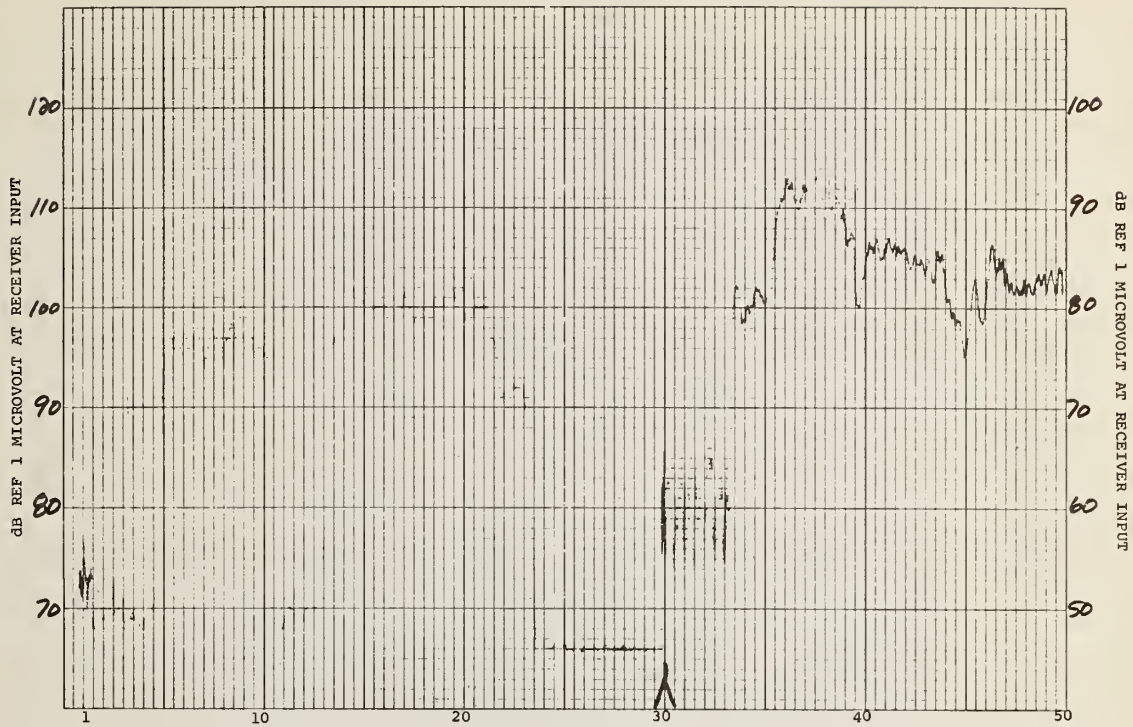


TEST NO. 340
TEST SPECIMEN OC
Dashavey

TEST TYPE PLL
TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
DATE 7-31-72

1557
SD

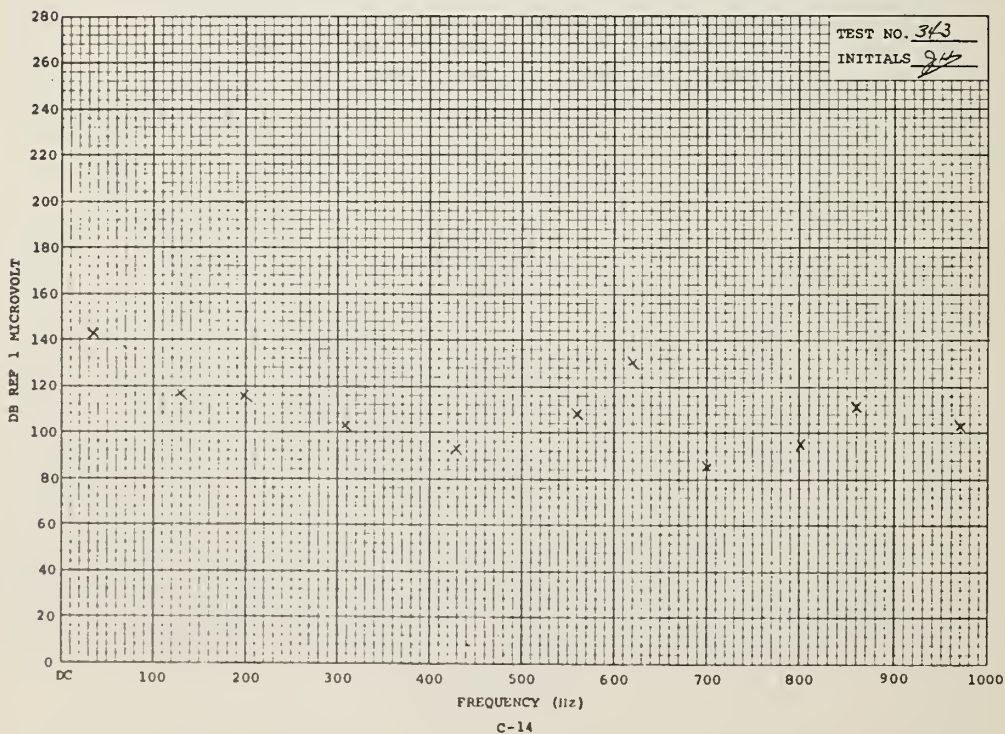
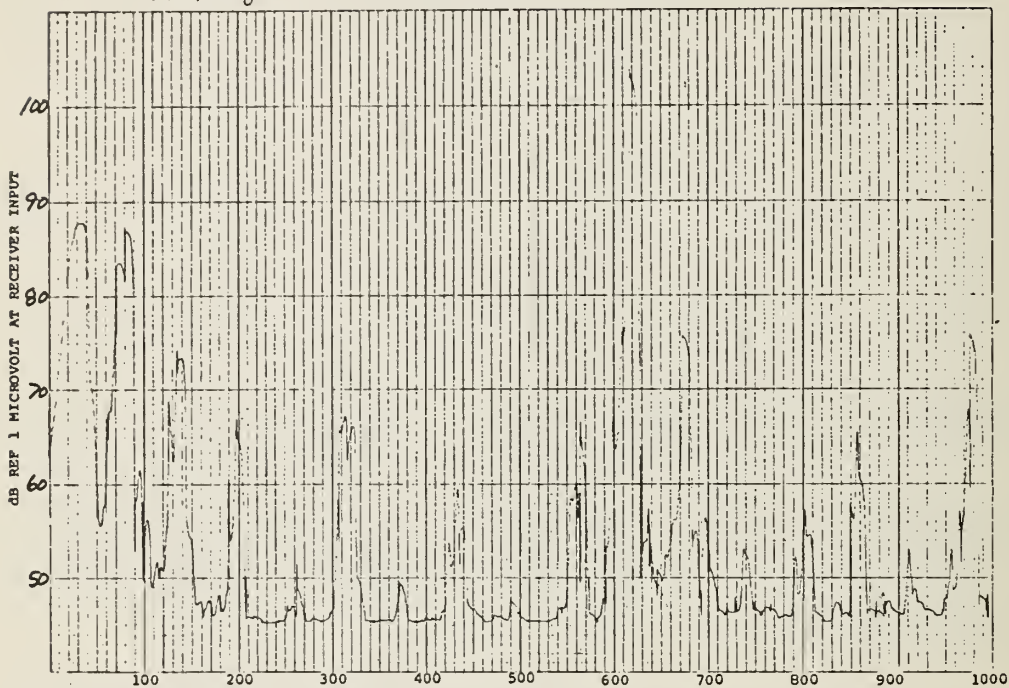


TEST NO. 343
TEST SPECIMEN Integral
Dachavega

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 5 Hz
DATE 7-31-72

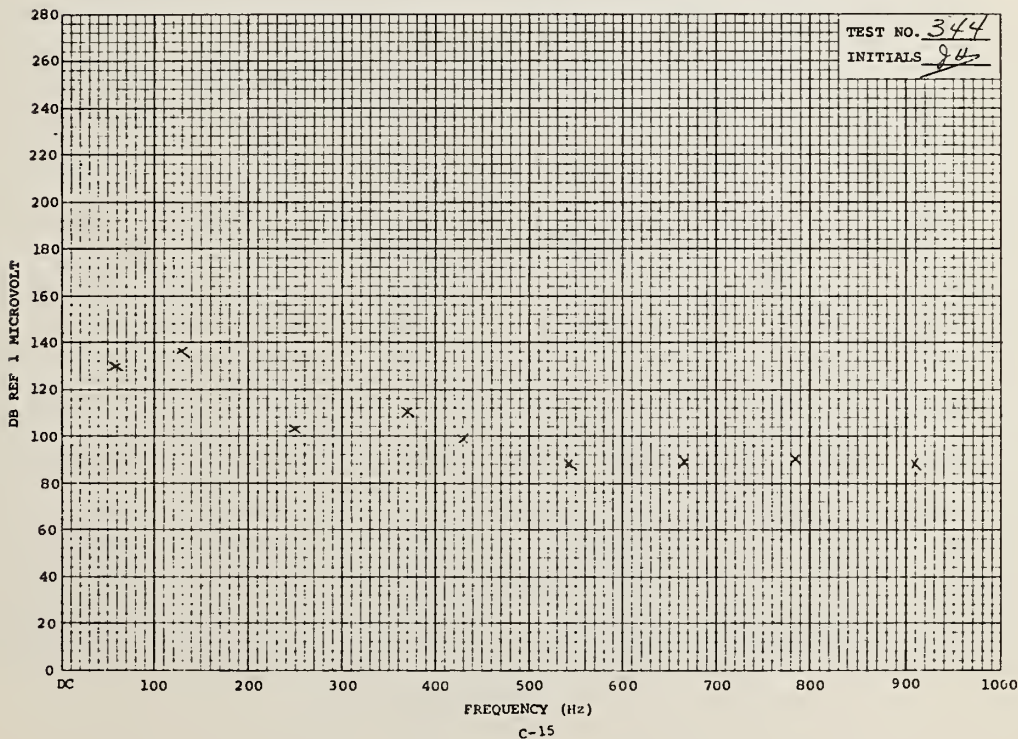
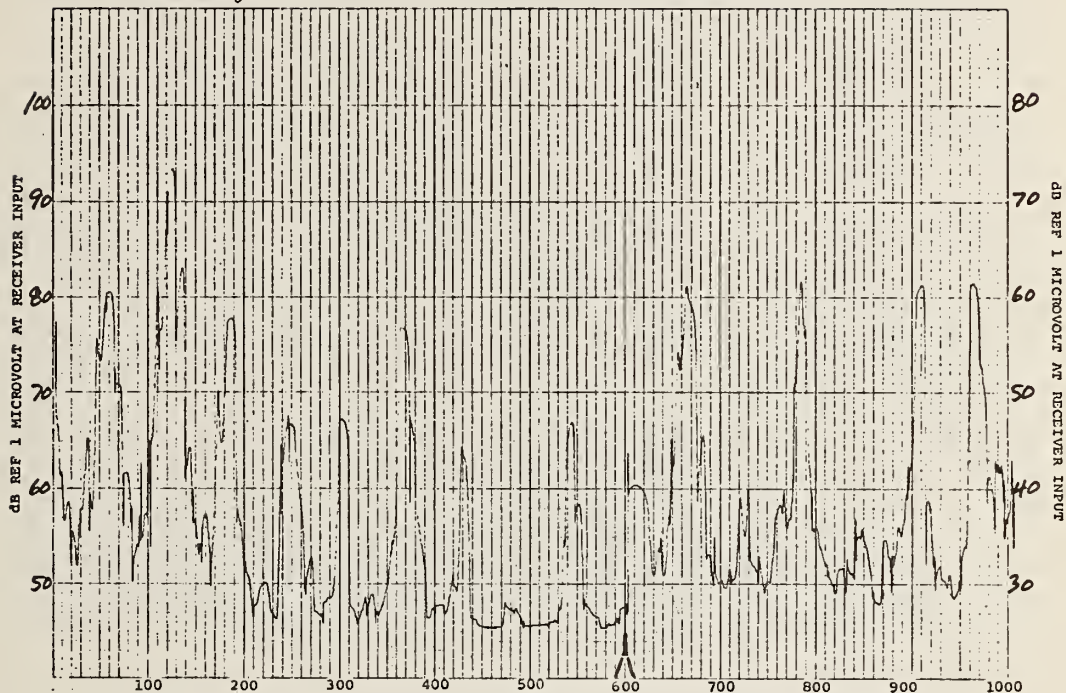
1611
SP



TEST NO. 344
TEST SPECIMEN Control
Daschaverson

TEST TYPE PLC
TEST EQUIP. ENC-10

BANDWIDTH 5 Hz
DATE 7-31-72

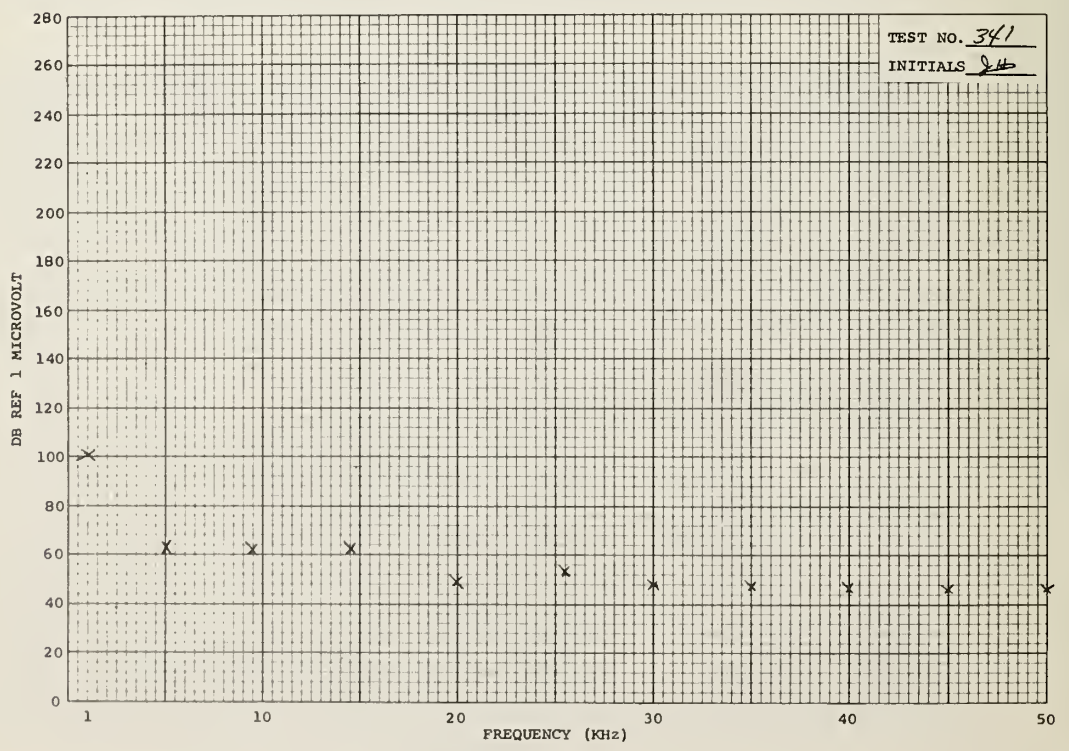
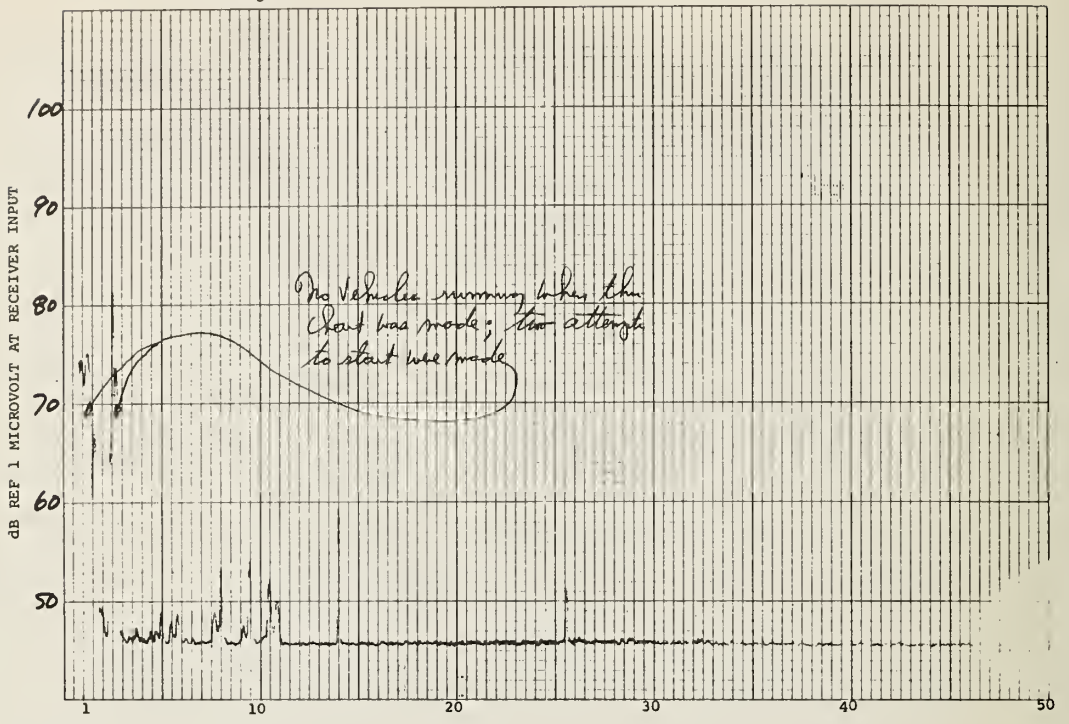


TEST NO. 341
 TEST SPECIMEN Neutral
Drahanyan

TEST TYPE PLC
 TEST EQUIP. ENC-10

BANDWIDTH 50 Hz
 DATE 7-31-72

1602
SS

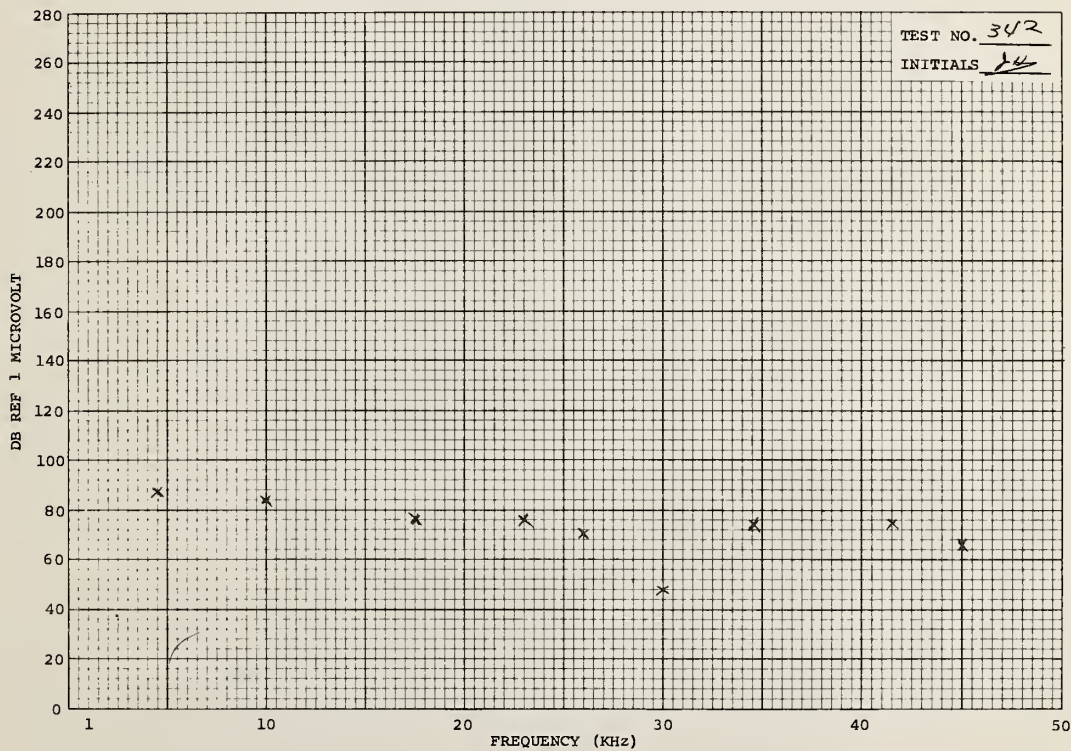
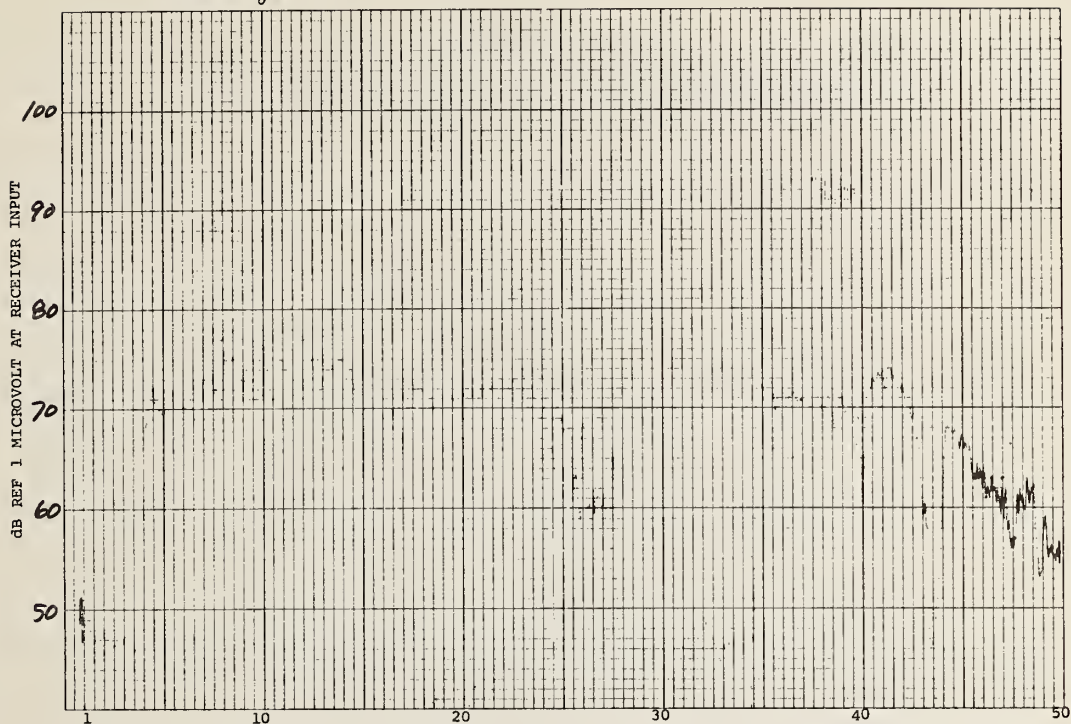


TEST NO. 342
TEST SPECIMEN Neutral
Dashaway

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
DATE 7-31-72

1607
EE



APPENDIX D

POWER LINE CONDUCTIONS MEASUREMENTS DATA

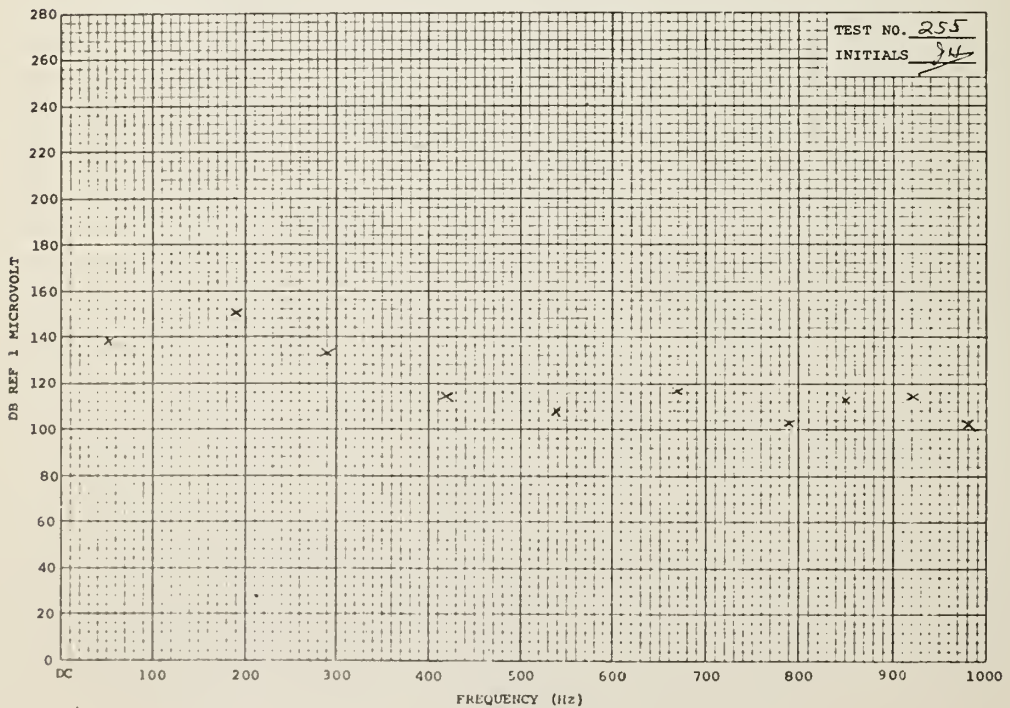
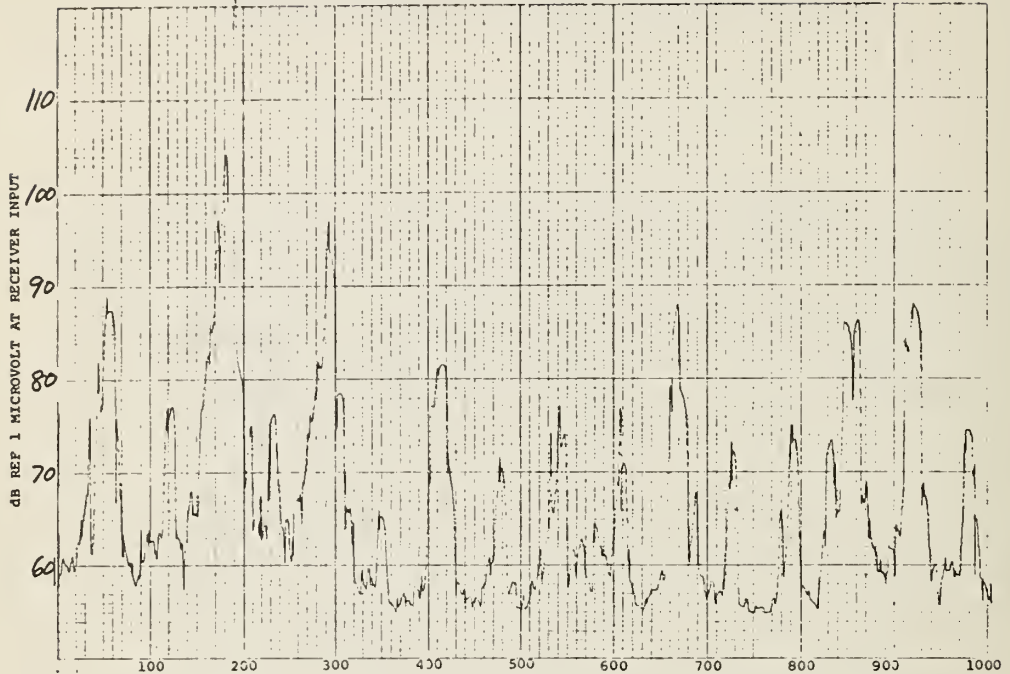
This appendix contains data charts for test No. 249 through 264. The charts are presented in order of phase -- A, B, C and neutral for ease of analysis, rather than in the numerical order as the tests were performed.

TEST NO. 255
TEST SPECIMEN QA

TEST TYPE PLC
TEST EQUIP. ENC-10

BANDWIDTH 5 Hz
DATE 7-27-72

1436
89



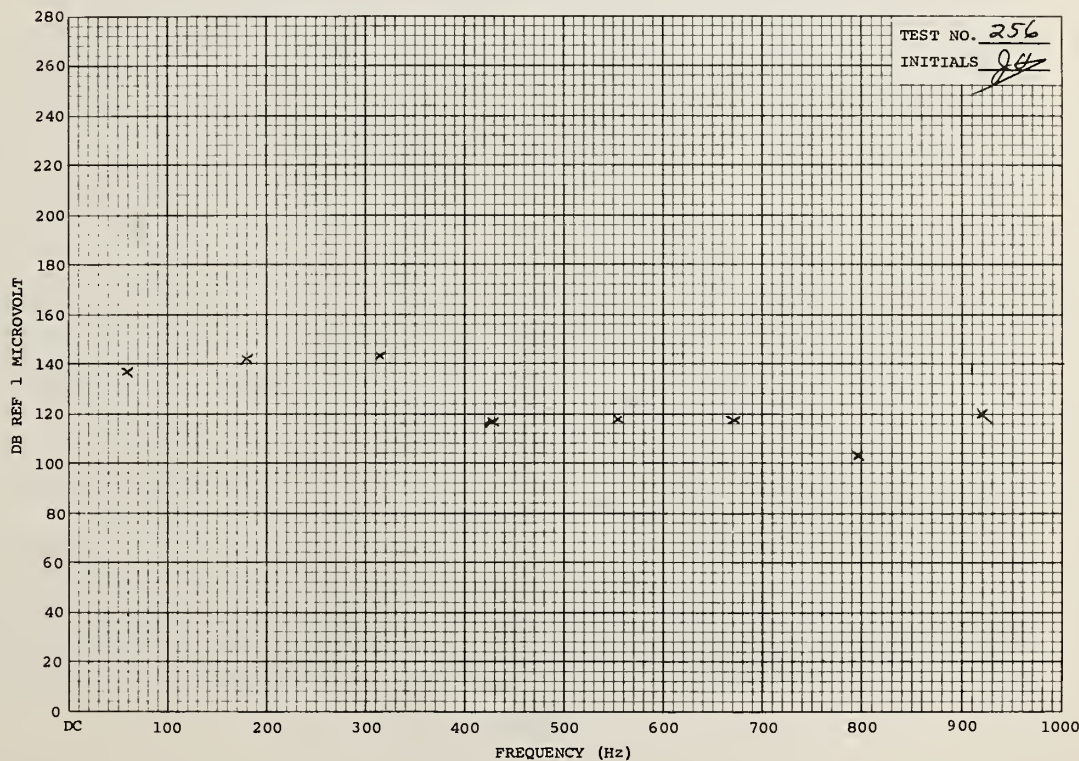
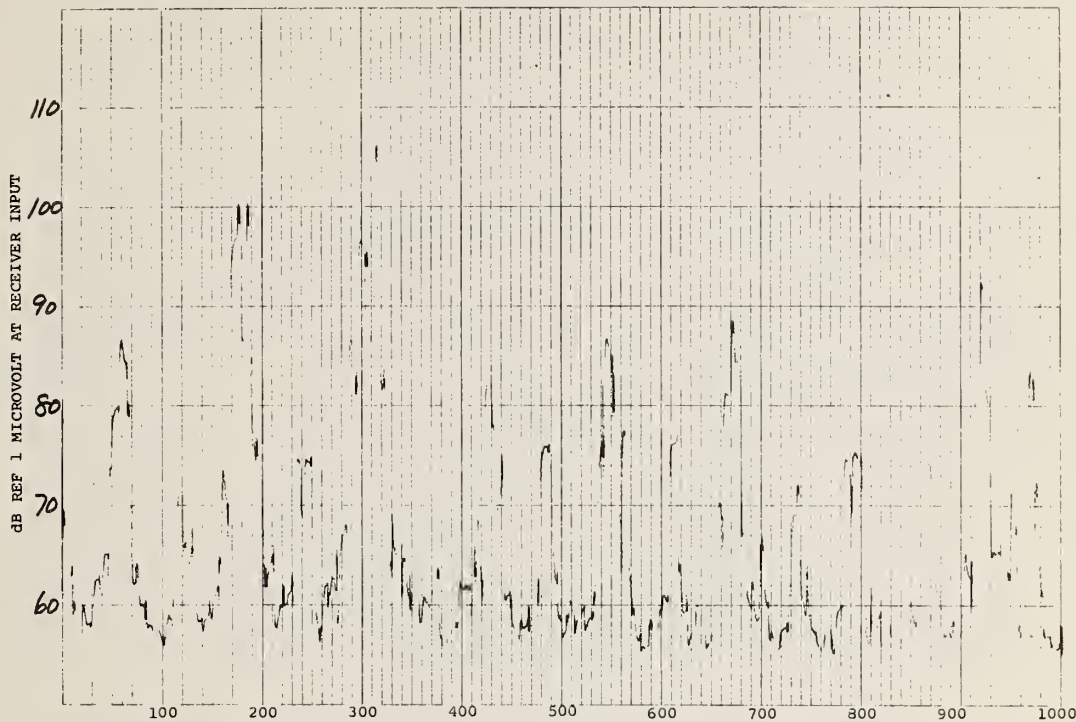
TEST NO. 256
TEST SPECIMEN 0A

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 5 Hz
DATE 2-27-72

1439
ED

monocel

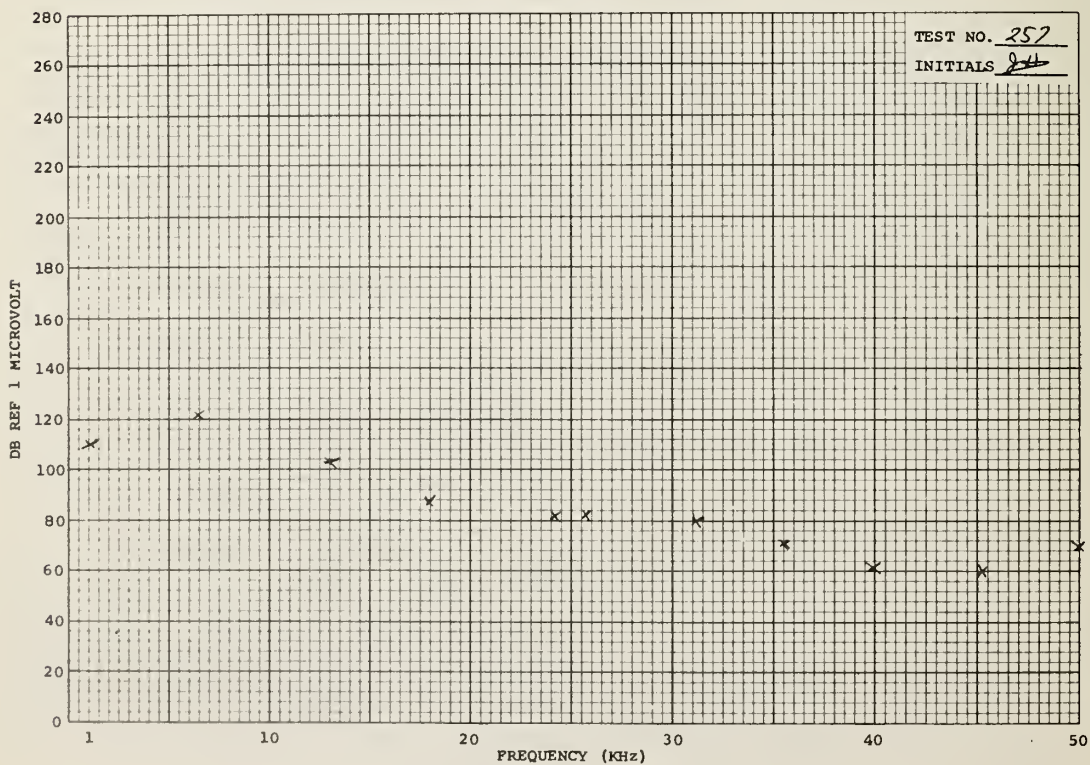
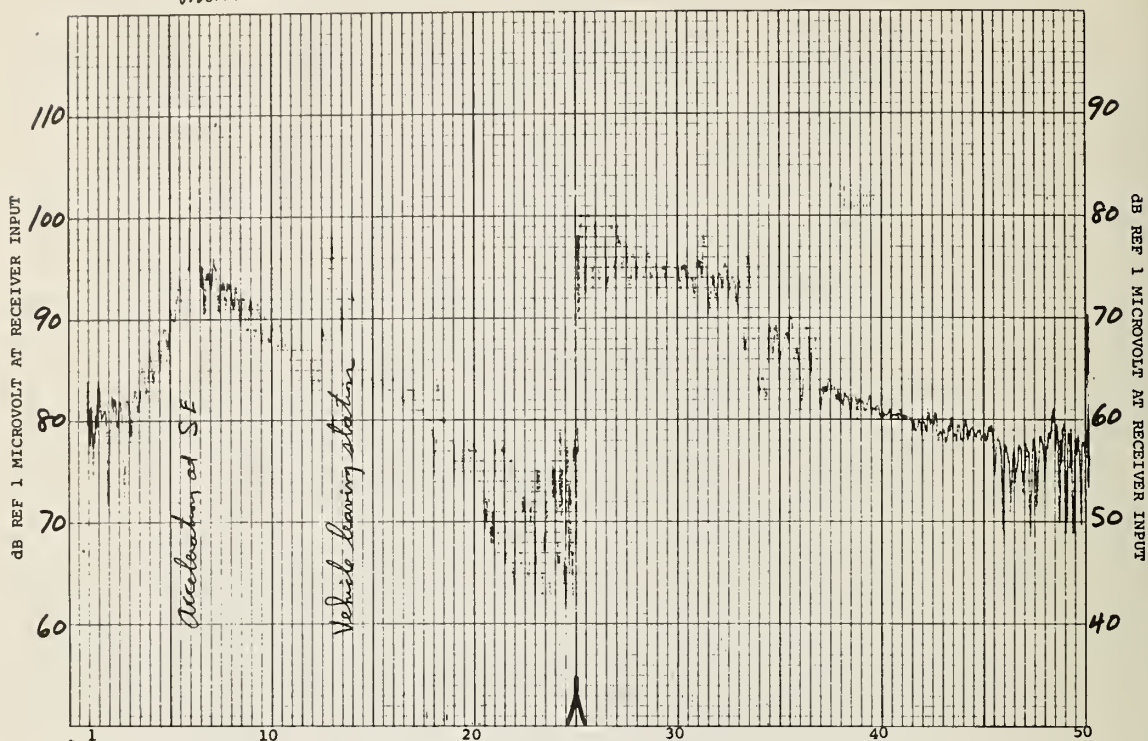


TEST NO. 257
TEST SPECIMEN PA
Monorail

TEST TYPE PLC
TEST EQUIP. ENC-10

BANDWIDTH 50 Hz
DATE 7-27-72

1445
EA

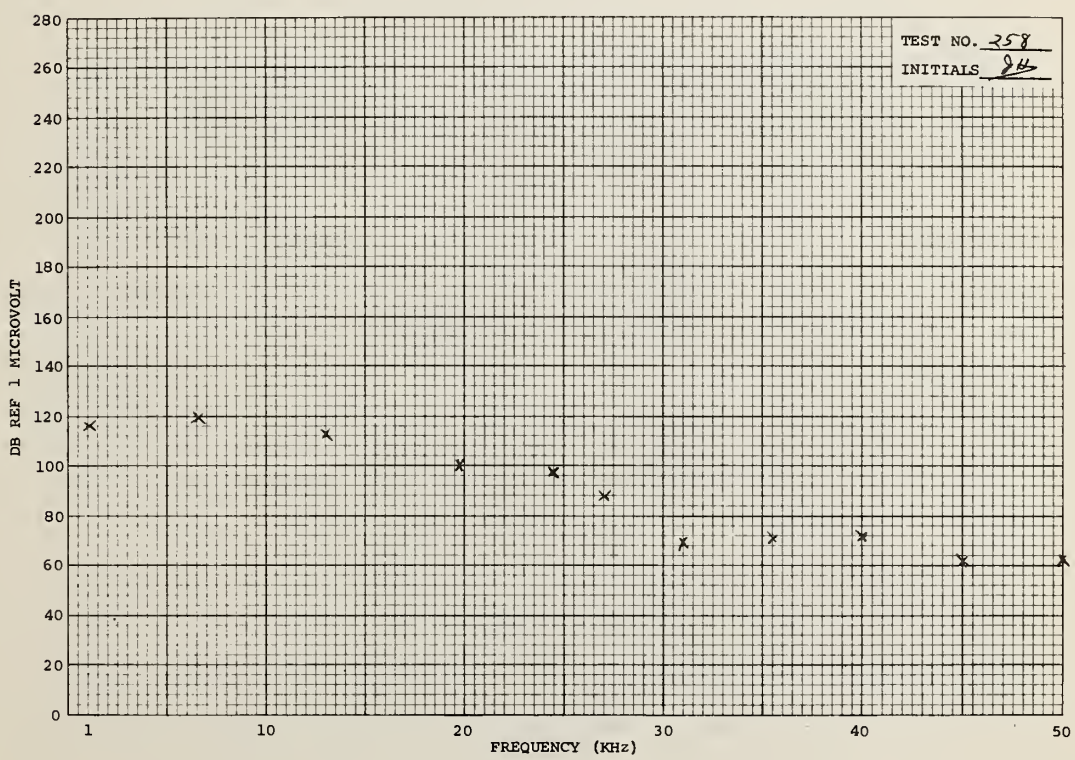
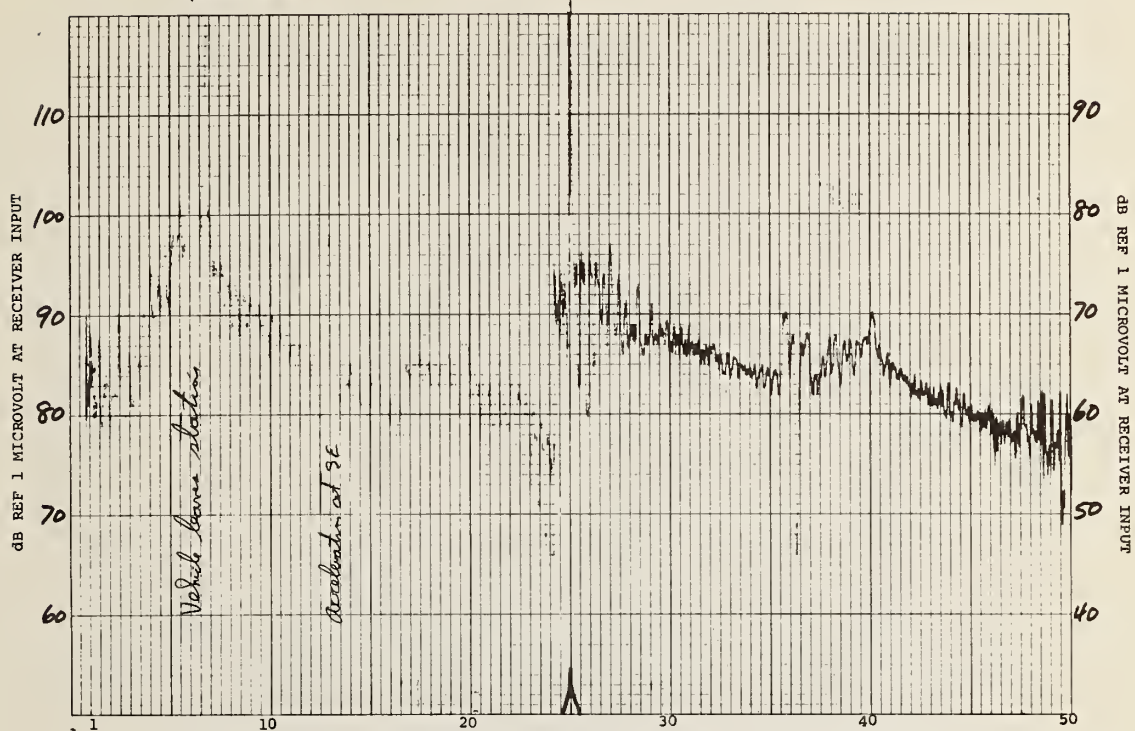


TEST NO. 258
 TEST SPECIMEN PA
Monoval

TEST TYPE PLC
 TEST EQUIP. ENC-10

BANDWIDTH 50 Hz
 DATE 7-27-72

1449
EE

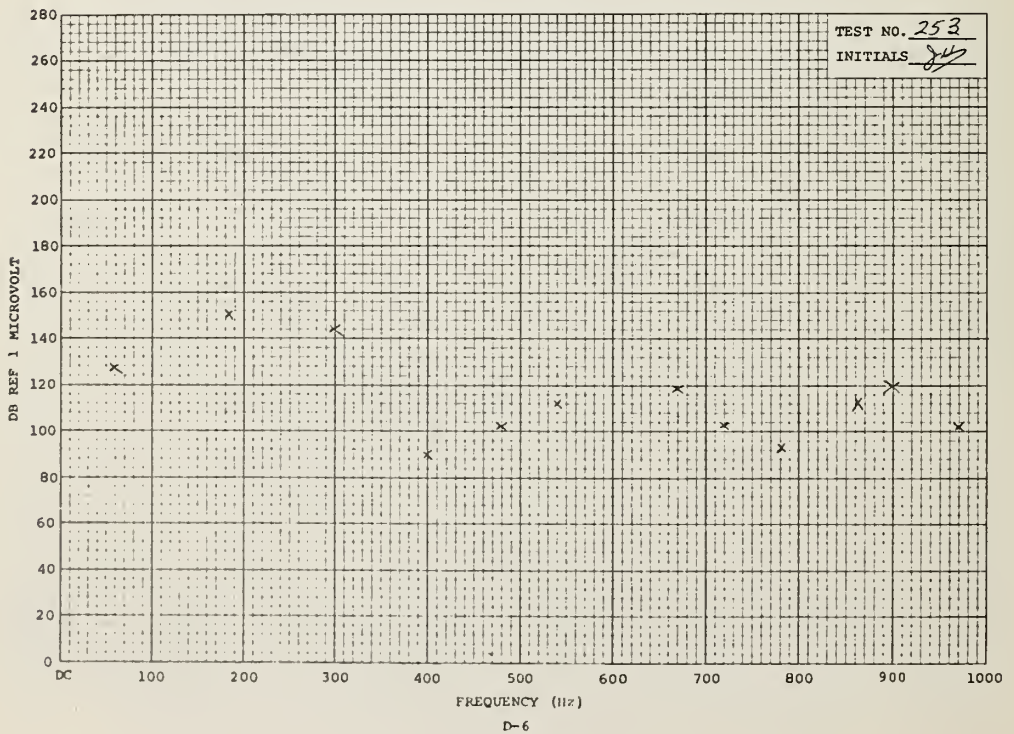


TEST NO. 253
TEST SPECIMEN QB

TEST TYPE PLC
TEST EQUIP. EM-10

BANDWIDTH 5 Hz
DATE 2-21-72

1429
EB

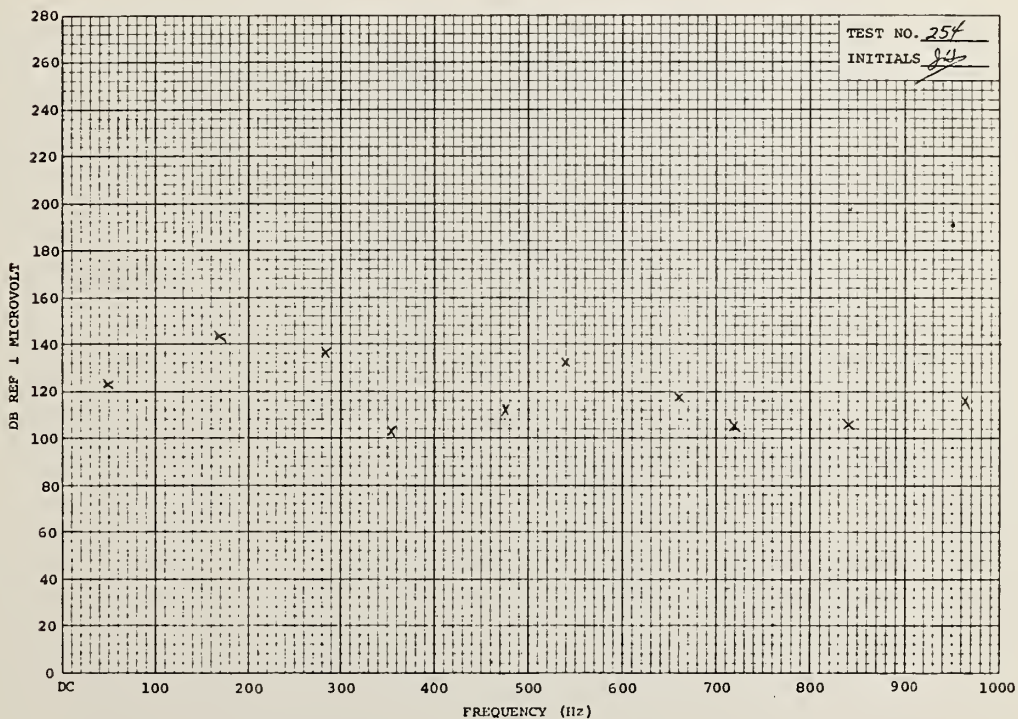
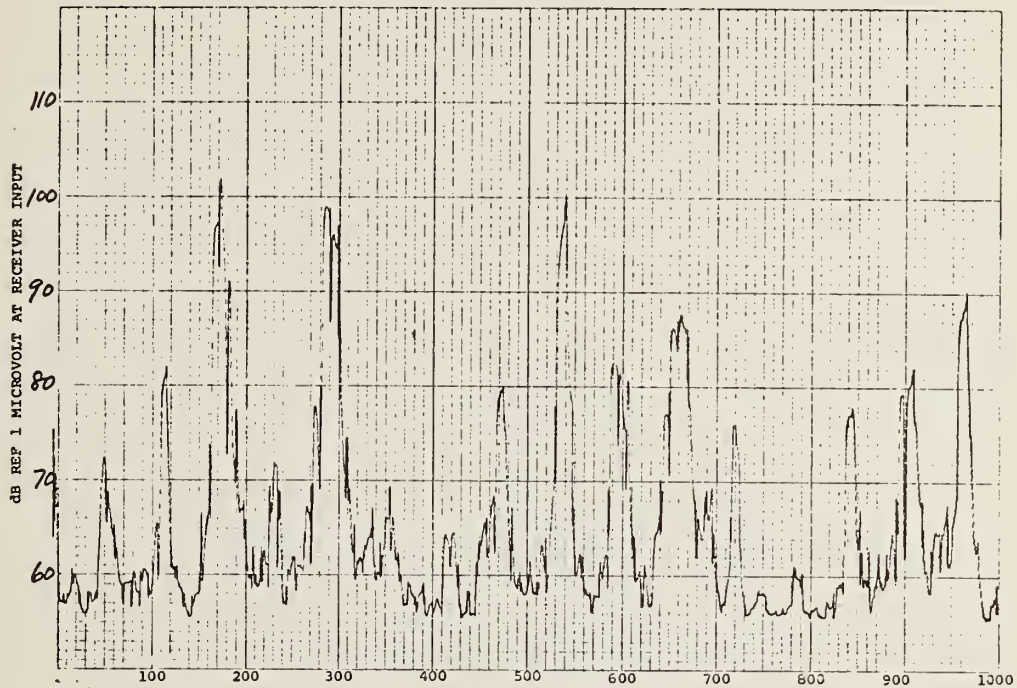


TEST NO. 254
TEST SPECIMEN QB
Monorail

TEST TYPE PLC
TEST EQUIP. ENC-10

BANDWIDTH 5 Hz
DATE 2-21-12

1432
EE

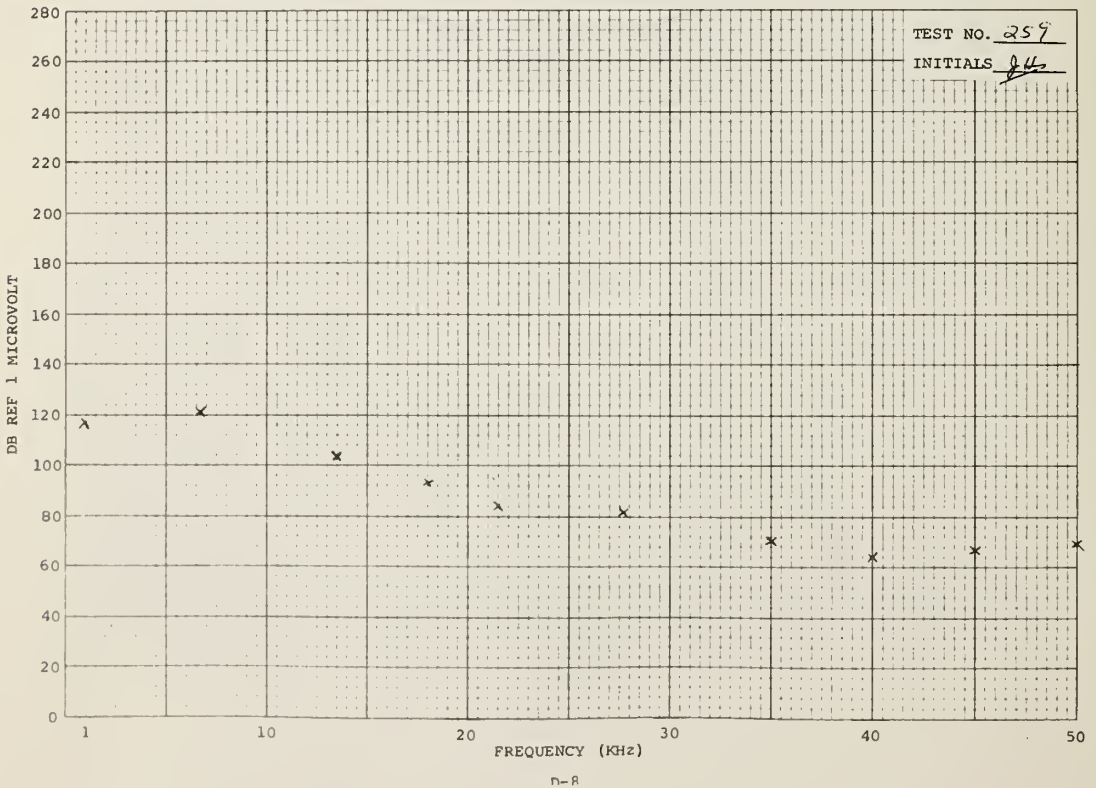
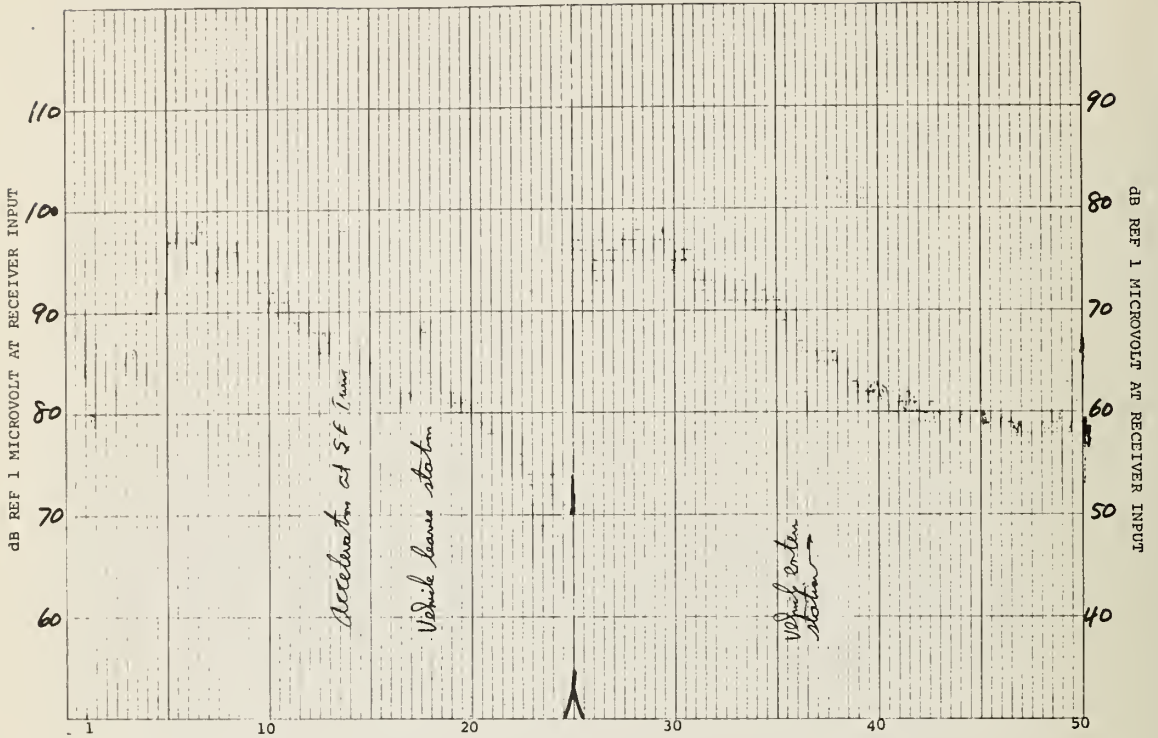


TEST NO. 259
TEST SPECIMEN OB
Monocal

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 50Hz
DATE 7-27-72

1455
ESJ

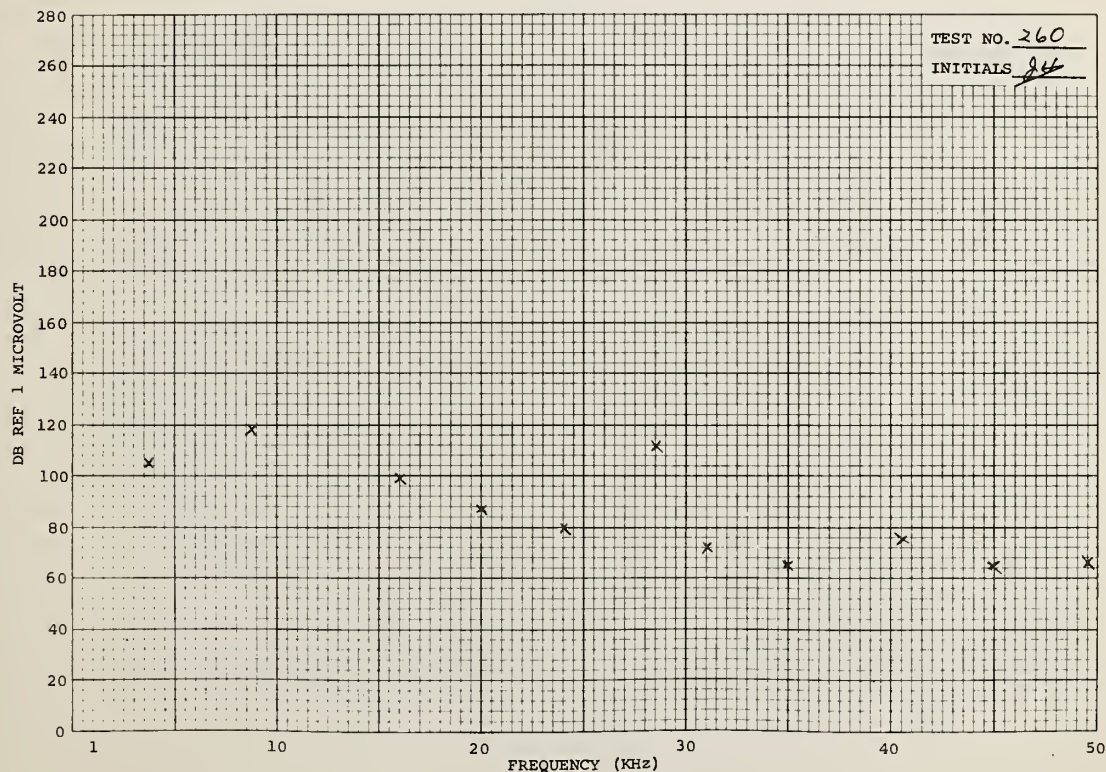
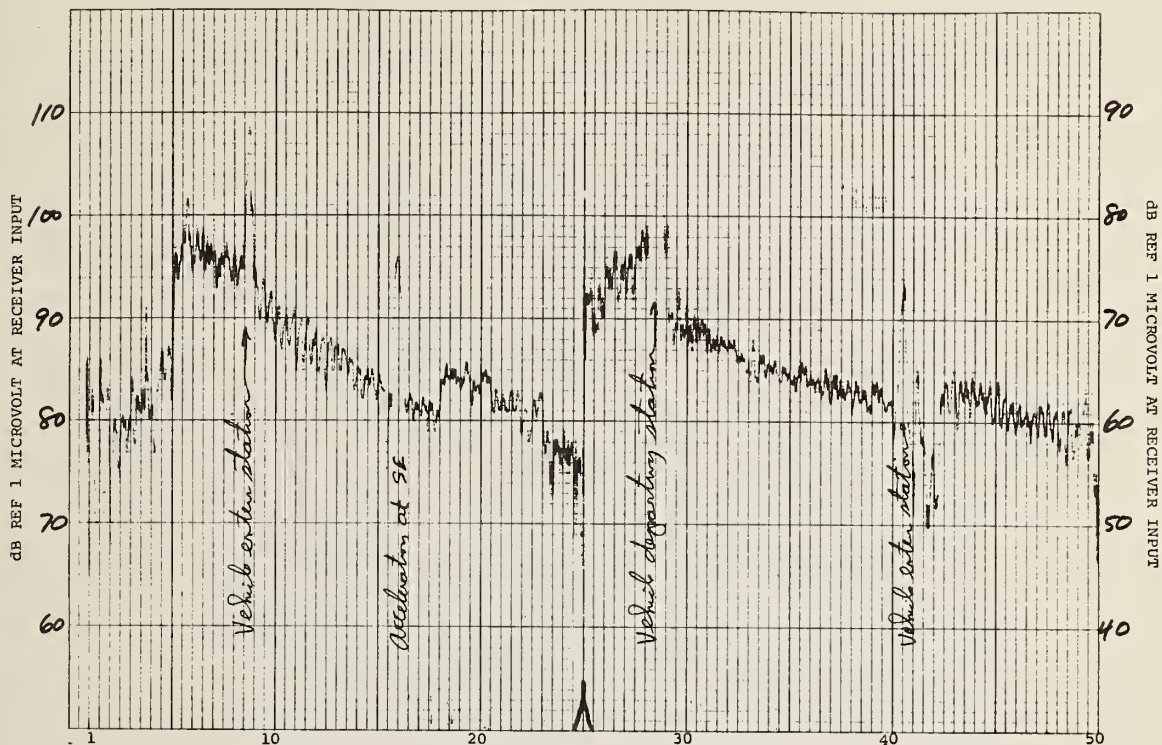


TEST NO. 260
TEST SPECIMEN Q B
Monorail

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
DATE 7-27-72

150°
ECJ

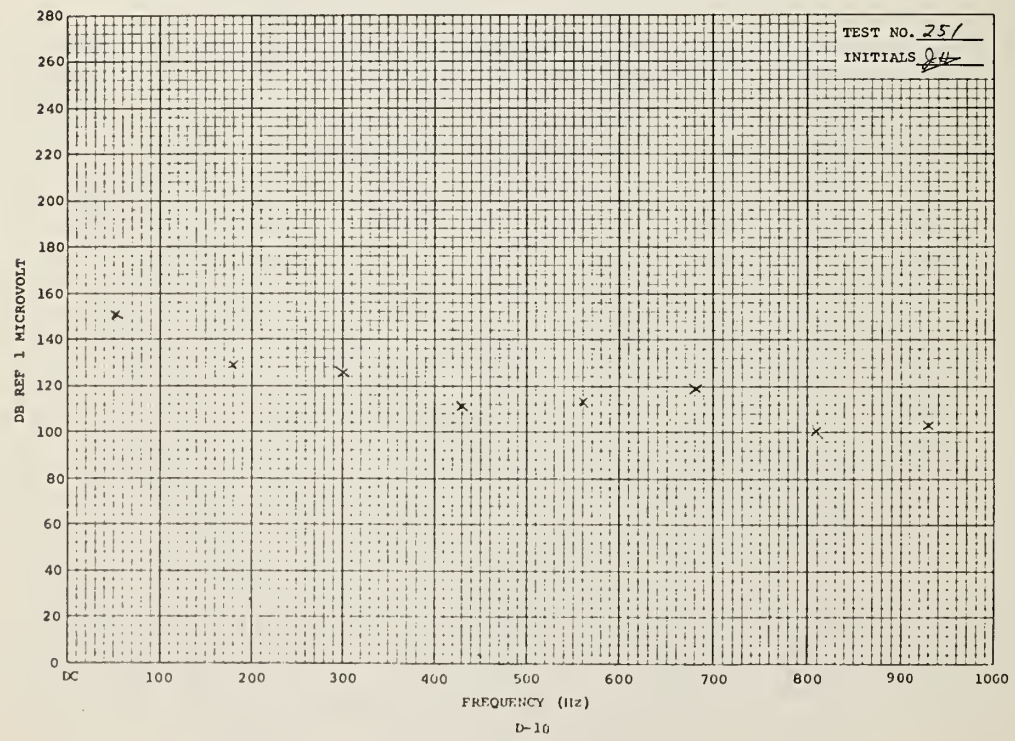
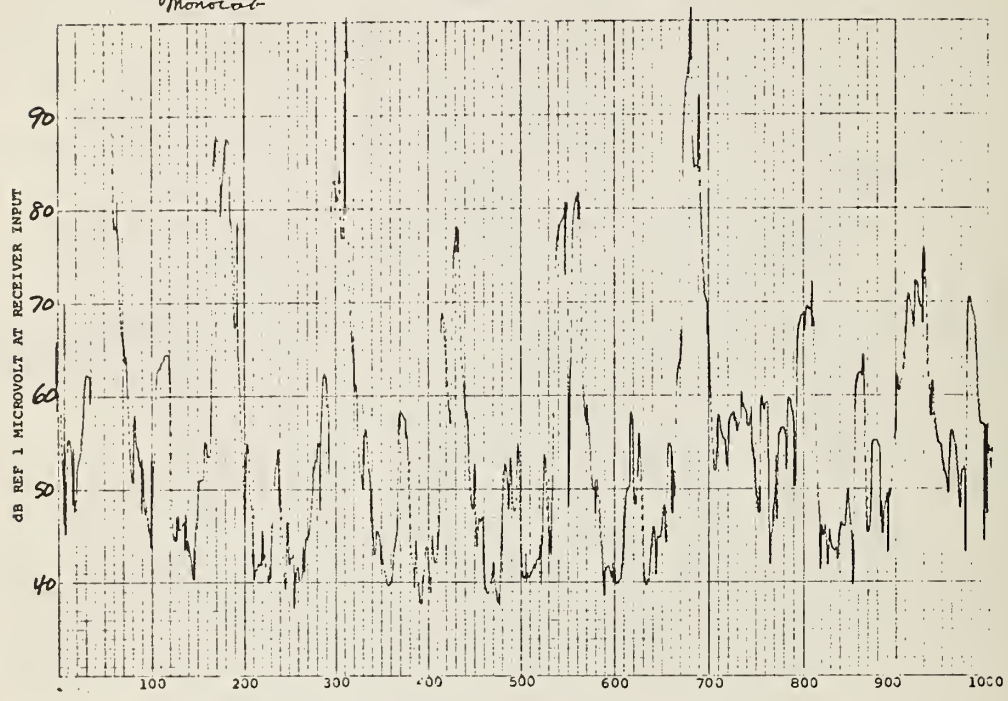


TEST NO. 251
TEST SPECIMEN QC
Monostat

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 5 Hz
DATE 7-27-72

1421
80

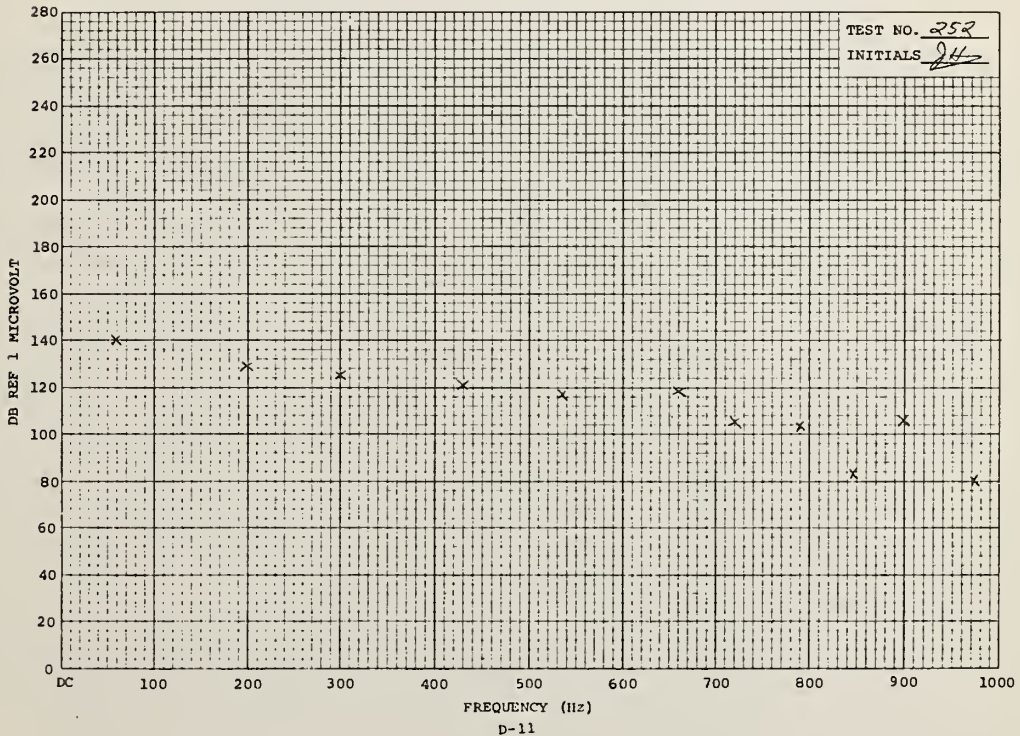
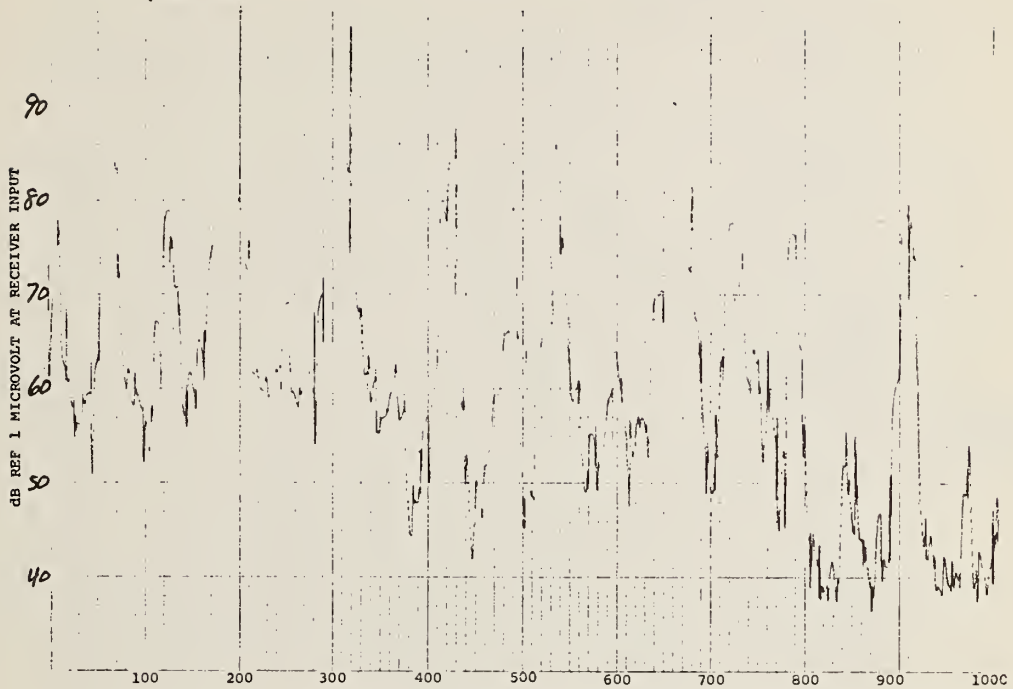


TEST NO. 252
TEST SPECIMEN PC
Monorail

TEST TYPE PLC
TEST EQUIP. FM 10

BANDWIDTH 542
DATE 1-27-72

1424
EEV

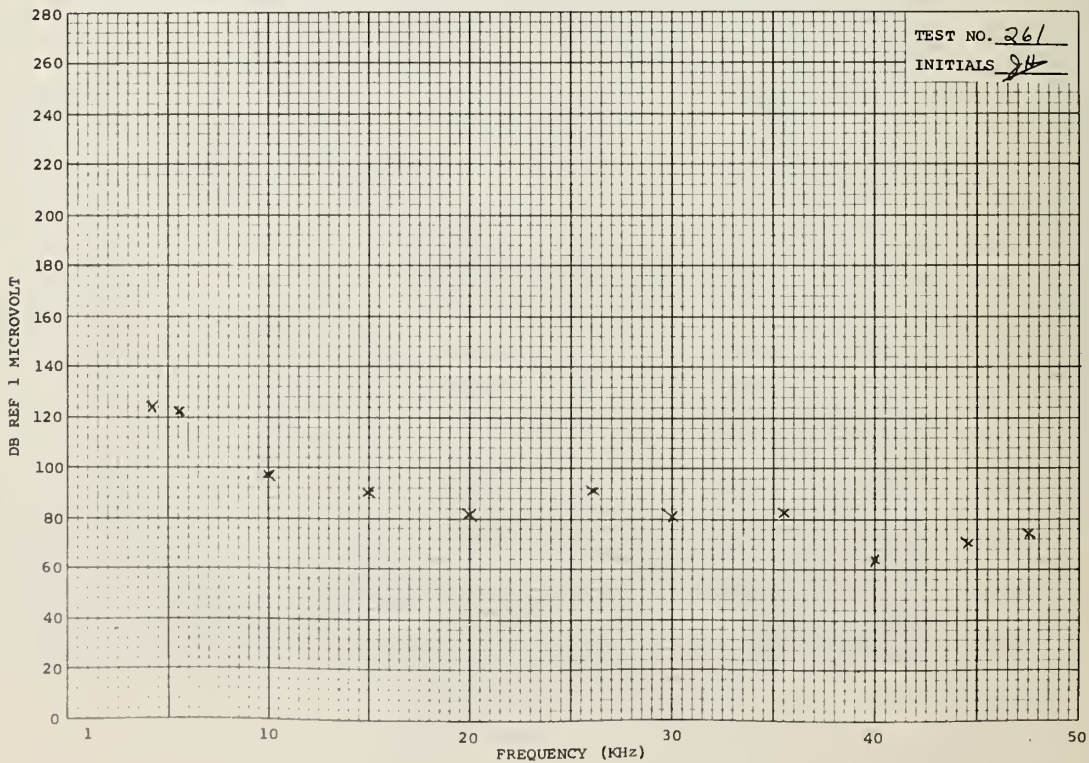
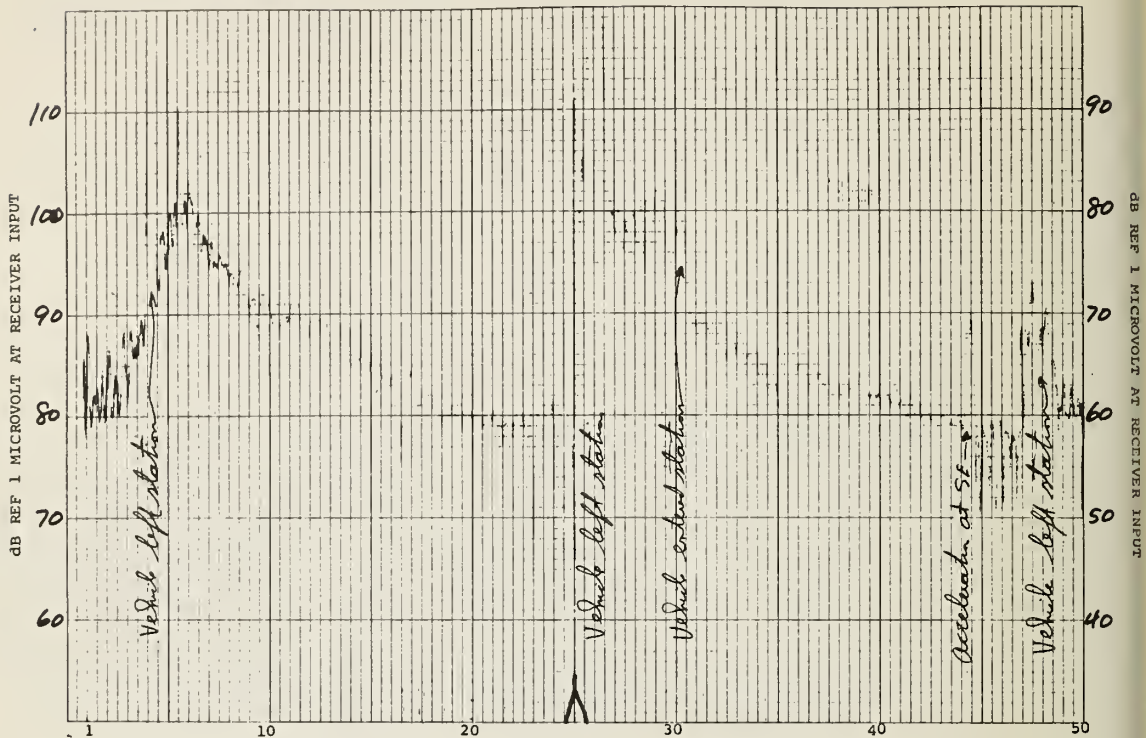


TEST NO. 261
TEST SPECIMEN QC
Monocab

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
DATE 7-27-72

1505
EG

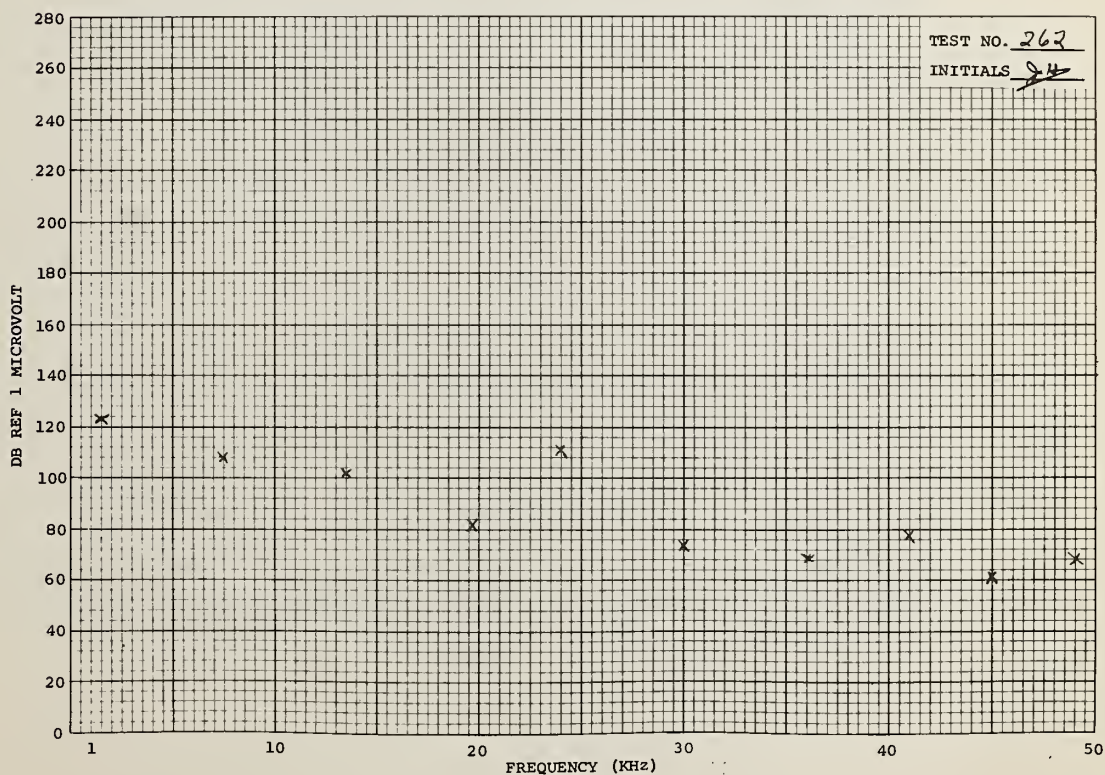


TEST NO. 262
 TEST SPECIMEN PC
monoval

TEST TYPE PLC
 TEST EQUIP. ENC-10

BANDWIDTH 50 Hz
 DATE 7-27-72

1511
SEA

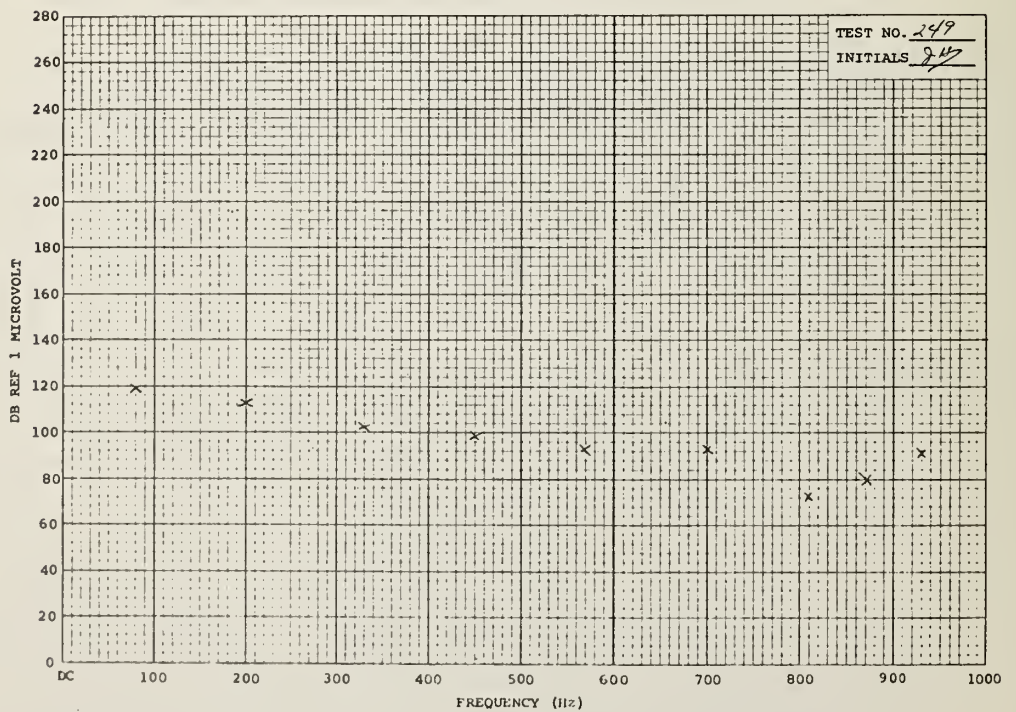
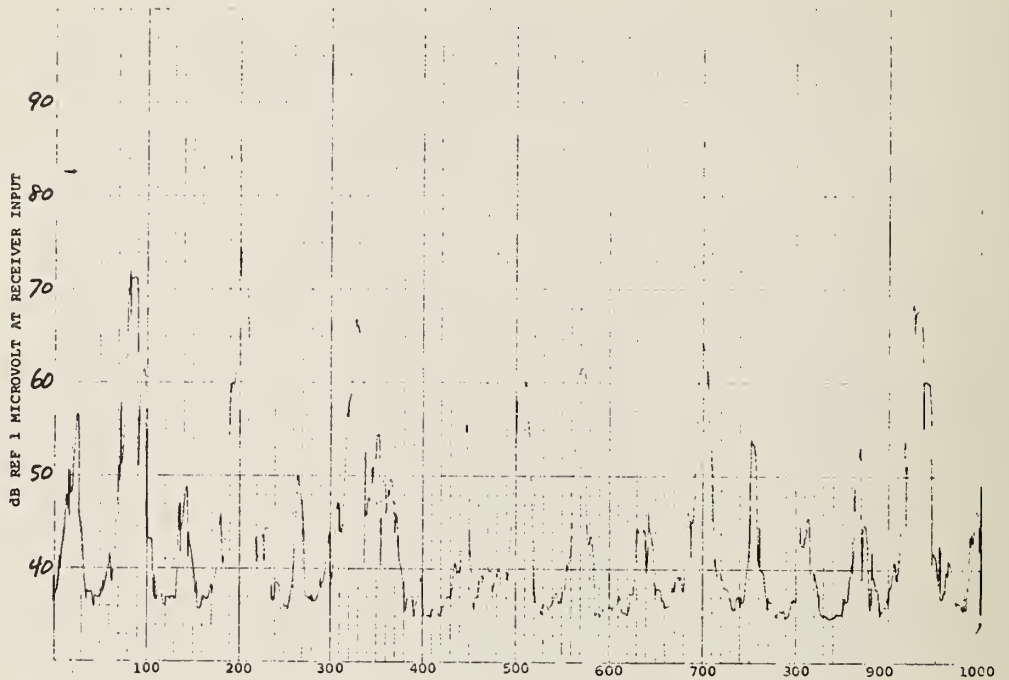


TEST NO. 249
TEST SPECIMEN Mutual
Monorail

TEST TYPE PLC
TEST EQUIP. MC 10

BANDWIDTH 5Hz
DATE 1-21-12

1414
ESJ

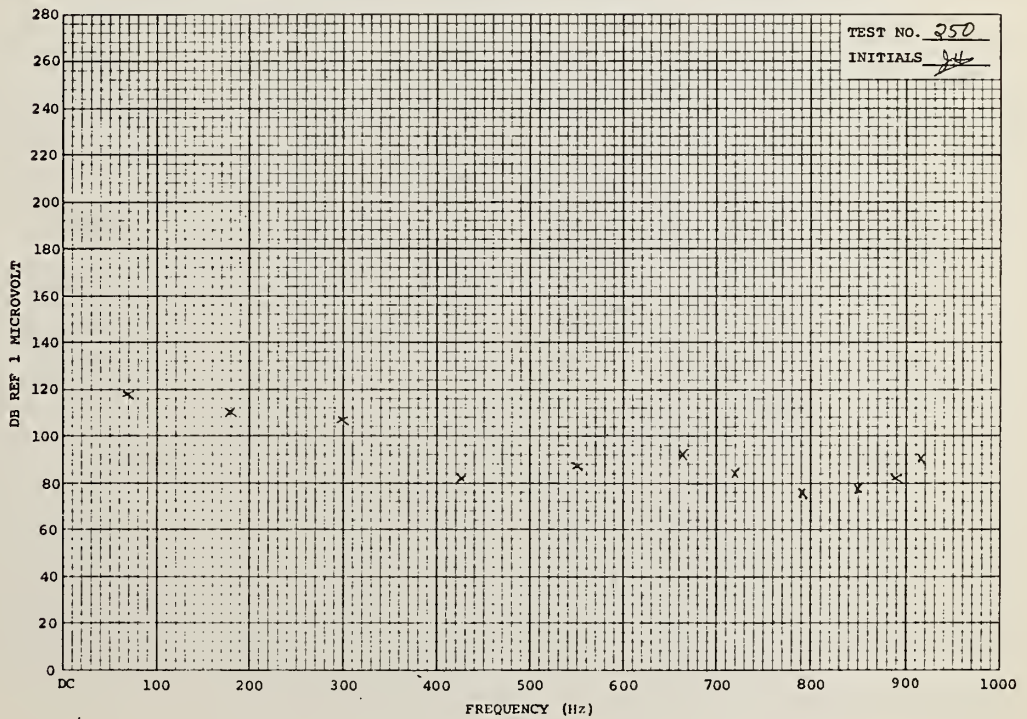


TEST NO. 250
 TEST SPECIMEN Monorail

TEST TYPE PLC
 TEST EQUIP. FM-10

BANDWIDTH 5 Hz
 DATE 7-22-73

1417
22

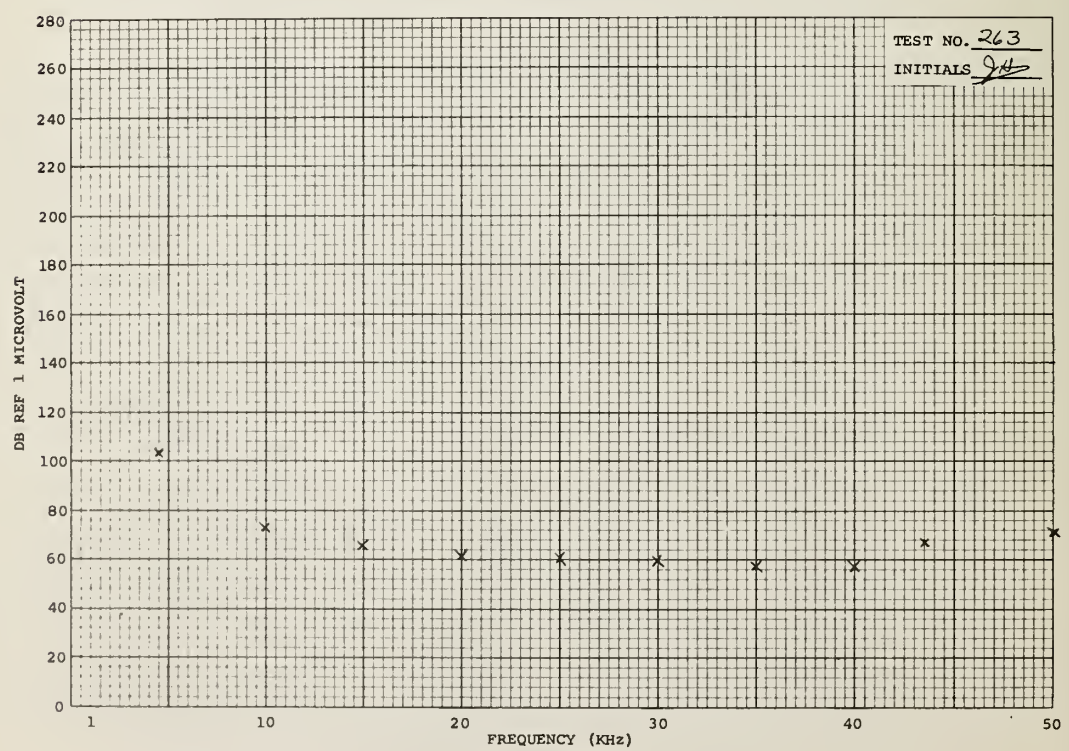
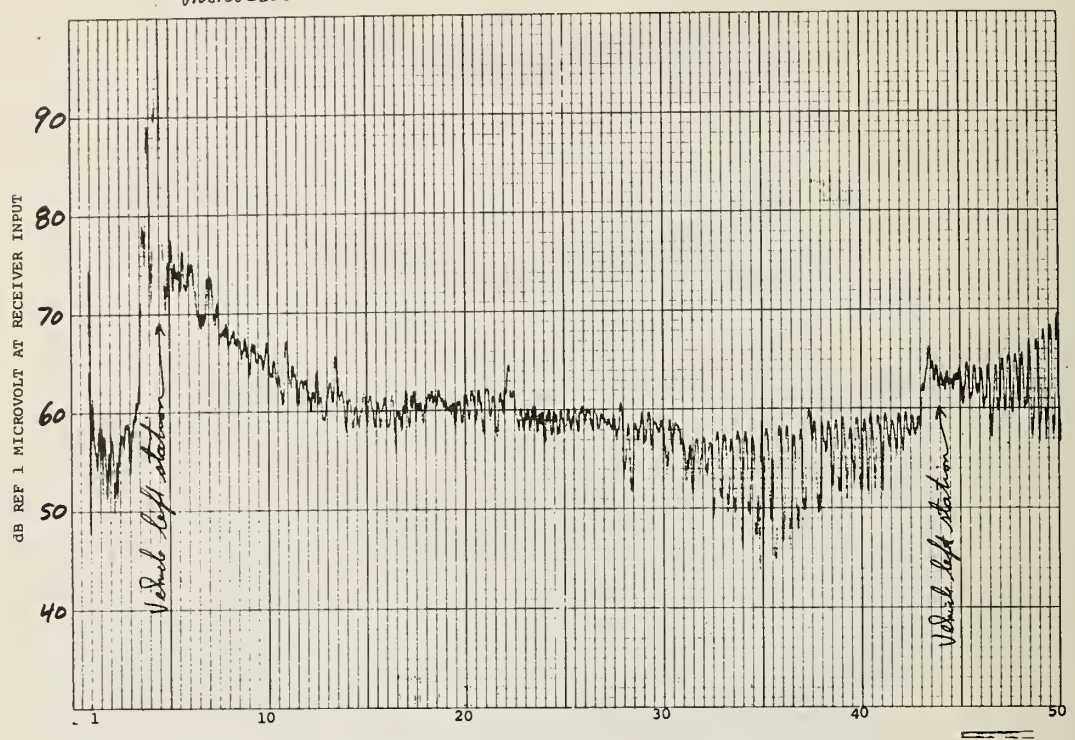


TEST NO. 263
TEST SPECIMEN Neutral
Monocarb

TEST TYPE PLC
TEST EQUIP. EMC-10

BANDWIDTH 50 Hz
DATE 7-27-72

1518
EF

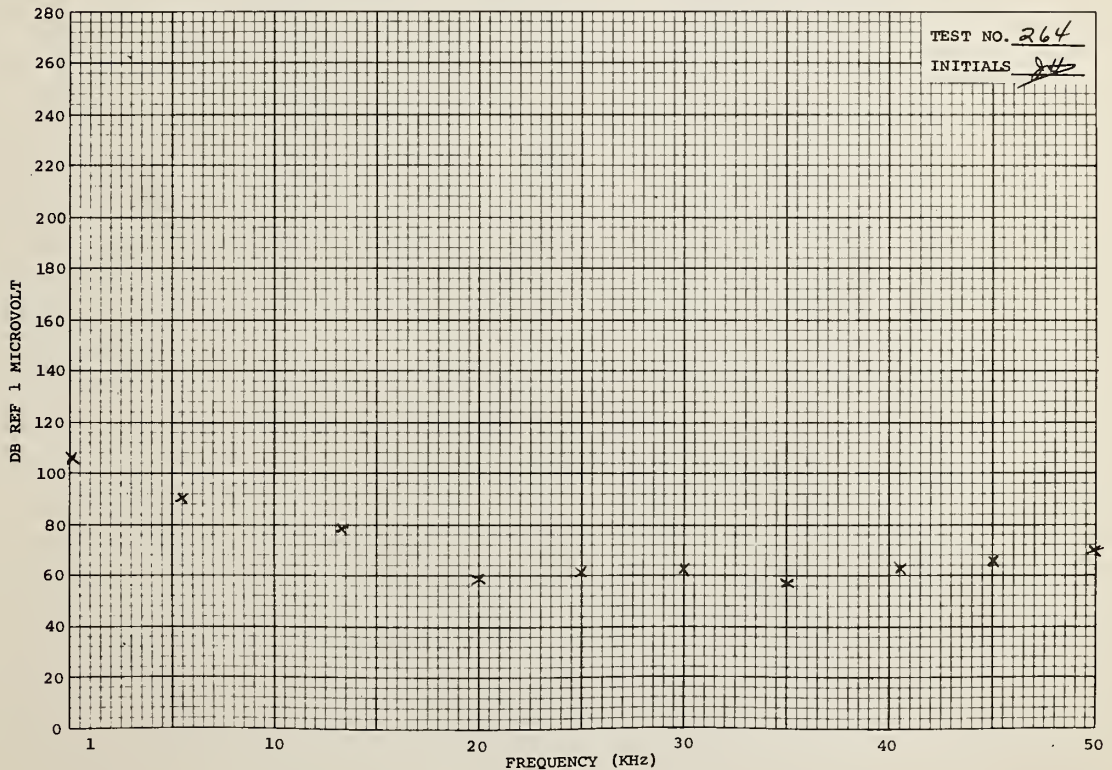
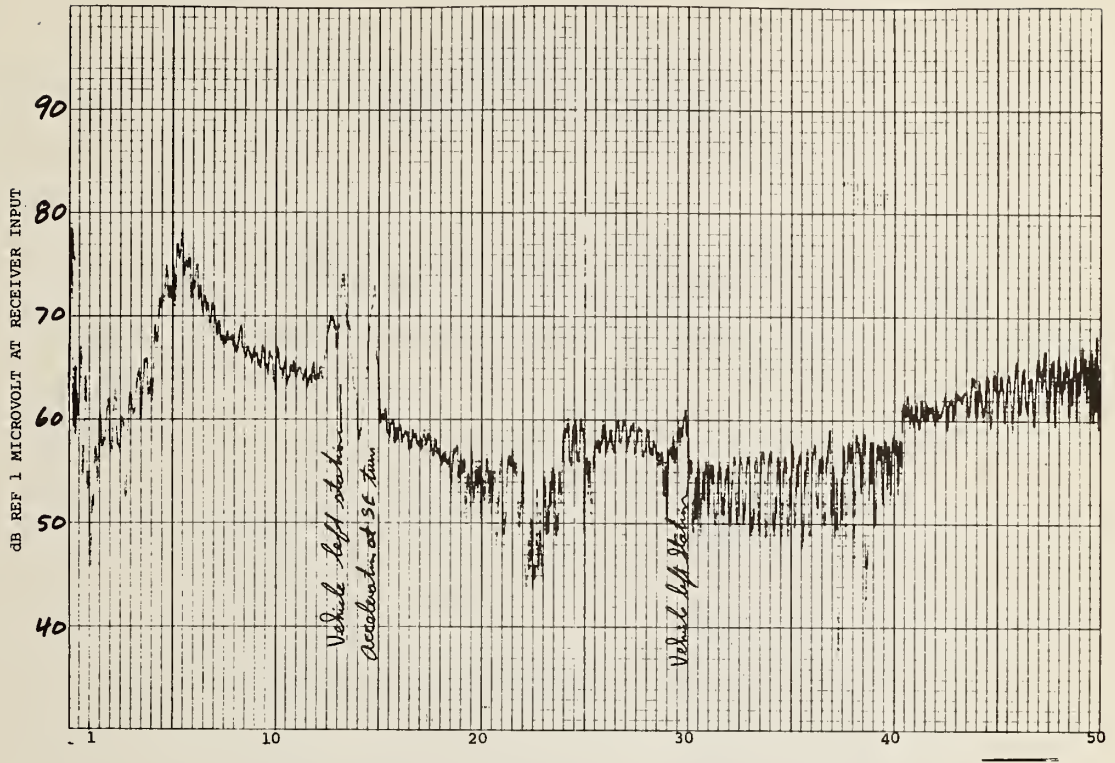


TEST NO. 264
TEST SPECIMEN Neutral
Monocarb

TEST TYPE PLL
TEST EQUIP. ENC-10

BANDWIDTH 50 Hz
DATE 7-27-72

1522
89



APPENDIX E
OPERATIONAL TIME LOG

This appendix contains the time logs for the PRT sites as they pertain to the tests described in this report, as follows:

TTI Site Tests:	July 25, 1972 Pages E-2 to E-16
Ford Site Tests:	August 2, 1972 Pages E-17 to E-21
Dashaveyor Site Tests:	July 31, 1972 Pages E-22 to E-31
Monocab Site Tests:	July 27, 1972 Pages E-32 to E-41

TTI SITE TESTS

July 25, 1972

Time

1353	Resumed 2 vehicle full automatic.
1500	Full automatic on 1 and 2.
1600	Full automatic operation vehicles 1 and 2.
1622	Stop vehicle operation.



DULLES SYSTEM



ORIGINATOR E.M. Paddock

O.D. READING _____ MILES

VEHICLE Shirley & Rachel

HOUR METER READING _____ HOURS

DATE 7-25-72 (Tues)

Item or Subject: Activity Record for EM Tests

Explanations:

Observations from station B resulted in a breakdown of a single cycle as follows.

2:04:45 Vehicles at A & B - both begin the cycle
2:05:25 Vehicle from B has come to a stop at E whereas vehicle from A has reached the stop and slowed considerably.
2:05:45 Vehicle at E begins to move to A.
AT = 2:05:55 " from A stops in B.
5 min 27 sec 2:07:25 " from E stops in A.
2:07:32 Both vehicles begin to move (from A & B)
2:08:10 Vehicle from B stops at E
2:09:50 Vehicle from E stops at A
2:10:12 Next cycle

Observations while on board the vehicle, resulted in a cycle breakdown as follows.

A to B 1 min, 01 sec
stop at B 1 min, 20 sec (long because other vehicle is going to
B to E 46 sec
stop at E 21 sec
E to A 1 min 35 sec
stop at A 8 sec

1 min, 13 sec = 5 min, 11 sec

Form STS 5

transpo

DULLES SYSTEM

ORIGINATOR: E.M. Paddock

O.D. READING _____ MILES

VEHICLE Shirley & Rachel

HOUR METER READING _____ HOURS

DATE: 7-25-72Form or Subject: Activity Record for EMI Tests

Explanations:

12:57:40 Begin cycle - vehicle move 50 ft - power shutdown on both lanes
 1:04:40 Power up both lanes
 1:05:40 move main lane vehicle (goes 100 ft before stopping)
 1:09:30 " " " " (" 25 " " " - move it back
 1:54:10 Both vehicles move - start of cycle
 1:59:17 Begin 2nd cycle
 2:04:45 " 3rd "
 2:10:12 " 4th "
 2:13:05 Both vehicles stop - power goes down at A.
 2:14:03 Continue cycle after long station stop (2 min 27 sec)
 2:16:30 Both vehicles at a stop - another long station stop (2 min 13 sec)
 2:18:43 Begin 5th cycle
 2:20:03 Vehicles stop - one at E, one at Fwy
 2:20:30 Power down - fuses out - same vehicle position
 2:24:25 Fuses in - power on
 2:26:10 Vehicle moves from fwy to B.
 2:27:43 " on main lane comes to emergency stop (as requested by power)
 2:28:18 Fuses out
 2:29:53 Fuses in
 2:30:17 Power on main line only - vehicle moved to A.
 2:31:31 Station lane power on
 2:33:42 Begin one vehicle mode operation on main lane - other vehicle at B.
 " Long station stop
 2:37:38 Begin next cycle from A.
 2:40:17 Vehicle moves from E
 2:40:52 Power failed and vehicle brought to emergency stop 200' from A
 2:41:26 Power on
 2:44:41 Vehicle moves toward A (20 ft) and stops
 2:45:37 " " into " and stops
 2:47:16 Both vehicles resume other half of dual vehicle cycle which was previously terminated (2:26:10)
 2:50:50 Begin 6th cycle
 2:55:16 " 7th "
 2:00:00 " 8th "

Form STS 5



DULLES SYSTEM

ORIGINATOR 2 M. PallorchO. D. READING MILESVEHICLE Shirley & RachelHOUR METER READING HOURSDATE 7-25-77Item or Subject: Activity Recorded for EMI Test

Explanations:

3:00:41 Vehicle from A stops at frog
3:01:32 " moved to B and cycle continues but a long station stop (37 s)
due to people exiting
3:06:29 Begin 9th cycle
3:11:58 Vehicle stops in A but long stop anticipated, otherwise next cycle
3:14:07 Begin 10th cycle
3:19:02 Begin 11th cycle
3:24:05 " 12 " "
3:25:08 Vehicle from A stops at frog
3:27:15 " moves from Frog to B
3:36:19 Begin 13th cycle
3:43:07 " 14 " "
3:44:32 " 15 " "
3:50:18 Stop one vehicle in station - breakers off - other vehicle at E
3:52:06 Vehicle moved to A from E
3:55:55 Begin 16th cycle
" 17th "
Some confusion as to tests
4:11:15 Begin 18th cycle
4:13:08 Vehicle at each station
4:15:20 resume other half of cycle
4:18:37 begin 19th cycle
4:24:00 shut down station lane power
4:24:30 one vehicle made on main lane
4:26:02 fuses out after vehicle moved from A to frog
4:35:18 fuses in - power on - move vehicle from frog to A
4:43:56 Begin next cycle - (vehicle from A stopped soft short of
B but other vehicle remained on cycle

Form STS 5

TRANSP0® '72 COMPUTER SYSTEM START UP

Dashneyor Bendix

July 25, 1972

RESTRICTIONS?

NEW CONFIGURATION? Y

CONFIGURATION CHANGE

MODE (D,S):

CLASS 2 FAILURE - VEHICLE B

S

RUNTHRU(FOR A,B,E,F,G,P,Q ONLY!)?

CONFIGURATION (A-V): A

VEHICLE(S) (A,B,2): 2

ACCEPTED

CONFIGURATION MODE OPERATING VEHICLE

A

S

A,B

OK? Y

READY

ELECTRIFY? Y

BEGIN ELECTRIFICATION

READY

T-14:24:30

TIME 00:02:23

T=24

TIME 24:02:39

T=14:25:00

TIME 14:25:00

CLASS 2 FAILURE - VEHICLE A

ARRIVAL VEH B STA C AT 14:25:12

SCHEDULED ARRIVAL 14:24:35

ARRIVAL VEH A STA N AT 14:26:00

SCHEDULED ARRIVAL 14:25:36

ARRIVAL VEH B STA S AT 14:28:10

SCHEDULED ARRIVAL 14:25:22

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 14:28:40

SCHEDULED ARRIVAL 14:26:22

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 14:29:33

SCHEDULED ARRIVAL 14:29:29

ARRIVAL VEH A STA S AT 14:29:47

SCHEDULED ARRIVAL 14:29:37

VEH A IN SECTION 9 MORE THAN 30 SECONDS

ARRIVAL VEH B STA C AT 14:31:31

SCHEDULED ARRIVAL 14:30:15

VEHICLE A EMERGENCY STOP AT STATION S

ARRIVAL VEH A STA N AT 14:31:59

ARRIVAL VEH A STA N AT 14:31:59
SCHEDULED ARRIVAL 14:30:47

ARRIVAL VEH B STA S AT 14:32:54
SCHEDULED ARRIVAL 14:31:04

SCHEDULE RE-ADJUSTED FOR VEHICLE B.

ARRIVAL VEH A STA C AT 14:33:24
SCHEDULED ARRIVAL 14:31:33

SCHEDULE RE-ADJUSTED FOR VEHICLE A.

ARRIVAL VEH B STA N AT 14:34:00
SCHEDULED ARRIVAL 14:34:12

ARRIVAL VEH A STA S AT 14:34:48
SCHEDULED ARRIVAL 14:34:23

ARRIVAL VEH B STA C AT 14:35:15
SCHEDULED ARRIVAL 14:35:01

ARRIVAL VEH A STA N AT 14:36:15
SCHEDULED ARRIVAL 14:35:33

CLASS 1 FAILURE - VEHICLE B

VEHICLE B EMERGENCY STOP AT STATION S
K

CLEAR ALARM

R

TRANSPO® '72 COMPUTER SYSTEM START UP

RESTRICTIONS?

NEW CONFIGURATION? Y

CONFIGURATION CHANGE

MODE (D,S): S

RUNTHRU(FOR A,B,E,F,G,P,Q ONLY!)?

CONFIGURATION (A-V): A

VEHICLE(S) (A,B,2): 2

ACCEPTED

CONFIGURATION MODE OPERATING VEHICLE

A

S

A,B

OK? Y

READY

ELECTRIFY? Y

BEGIN ELECTRIFICATION

READY

ARRIVAL VEH B STA S AT 14:40:25
SCHEDULED ARRIVAL 14:41:02

ARRIVAL VEH A STA C AT 14:40:54
SCHEDULED ARRIVAL 14:40:46

ARRIVAL VEH B STA N AT 14:41:47
SCHEDULED ARRIVAL 14:42:21

ARRIVAL VEH A STA S AT 14:42:01
SCHEDULED ARRIVAL 14:41:34

ARRIVAL VEH B STA C AT 14:43:14
SCHEDULED ARRIVAL 14:43:09

ARRIVAL VEH A STA N AT 14:43:42
SCHEDULED ARRIVAL 14:42:45

ARRIVAL VEH B STA S AT 14:44:25
SCHEDULED ARRIVAL 14:43:59

ARRIVAL VEH A STA C AT 14:44:56
SCHEDULED ARRIVAL 14:43:32

CLASS 3 FAILURE - VEHICLE B

ARRIVAL VEH B STA N AT 14:45:30
SCHEDULED ARRIVAL 14:45:10

ARRIVAL VEH A STA S AT 14:46:18
SCHEDULED ARRIVAL 14:44:20

SCHEDULE RE-ADJUSTED FOR VEHICLE A

CLASS 3 FAILURE - VEHICLE A

ARRIVAL VEH B STA C AT 14:46:44
SCHEDULED ARRIVAL 14:45:57

ARRIVAL VEH A STA N AT 14:47:46
SCHEDULED ARRIVAL 14:47:37

ARRIVAL VEH B STA S AT 14:49:13
SCHEDULED ARRIVAL 14:46:44

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 14:49:42
SCHEDULED ARRIVAL 14:48:23

ARRIVAL VEH B STA N AT 14:50:35
SCHEDULED ARRIVAL 14:50:32

ARRIVAL VEH A STA S AT 14:50:49
SCHEDULED ARRIVAL 14:49:12

ARRIVAL VEH B STA C AT 14:51:31
SCHEDULED ARRIVAL 14:51:19

ARRIVAL VEH A STA N AT 14:52:16
SCHEDULED ARRIVAL 14:50:22

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA S AT 14:52:59
SCHEDULED ARRIVAL 14:52:03

ARRIVAL VEH A STA C AT 14:53:30
SCHEDULED ARRIVAL 14:53:05

ARRIVAL VEH B STA N AT 14:54:03

ARRIVAL VEH A STA C AT 14:53:30
SCHEDULED ARRIVAL 14:53:05

ARRIVAL VEH B STA N AT 14:54:03
SCHEDULED ARRIVAL 14:53:18

ARRIVAL VEH A STA S AT 14:54:51
SCHEDULED ARRIVAL 14:53:54
T=14:55:5

ARRIVAL VEH B STA C AT 14:55:17
SCHEDULED ARRIVAL 14:54:05

ARRIVAL VEH B STA S AT 14:56:21
SCHEDULED ARRIVAL 14:54:54

ARRIVAL VEH A STA N AT 14:56:30
SCHEDULED ARRIVAL 14:55:04

ARRIVAL VEH A STA C AT 14:57:46
SCHEDULED ARRIVAL 14:55:51

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 14:58:01
SCHEDULED ARRIVAL 14:56:04

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 14:58:49
SCHEDULED ARRIVAL 14:58:45

ARRIVAL VEH B STA C AT 14:59:15
SCHEDULED ARRIVAL 14:58:50
T=15:00:00
TIME 14:55:50

ARRIVAL VEH B STA S AT 14:56:29
SCHEDULED ARRIVAL 14:55:39

ARRIVAL VEH A STA N AT 14:56:39
SCHEDULED ARRIVAL 14:55:59
T=15:01:30
TIME 15:01:30

ARRIVAL VEH A STA C AT 15:01:52
SCHEDULED ARRIVAL 15:00:46

ARRIVAL VEH B STA N AT 15:01:59
SCHEDULED ARRIVAL 15:00:50

ARRIVAL VEH A STA S AT 15:02:54
SCHEDULED ARRIVAL 15:01:35

ARRIVAL VEH B STA C AT 15:03:22
SCHEDULED ARRIVAL 15:01:36

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 15:04:20
SCHEDULED ARRIVAL 15:02:45

ARRIVAL VEH B STA S AT 15:05:03

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 15:04:20
SCHEDULED ARRIVAL 15:02:45

ARRIVAL VEH B STA S AT 15:05:03
SCHEDULED ARRIVAL 15:04:20

ARRIVAL VEH A STA C AT 15:05:32
SCHEDULED ARRIVAL 15:03:32

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 15:06:26
SCHEDULED ARRIVAL 15:05:31

ARRIVAL VEH A STA S AT 15:06:39
SCHEDULED ARRIVAL 15:06:30

ARRIVAL VEH B STA C AT 15:07:21
SCHEDULED ARRIVAL 15:06:18

ARRIVAL VEH A STA N AT 15:08:06
SCHEDULED ARRIVAL 15:07:40

ARRIVAL VEH B STA S AT 15:09:53
SCHEDULED ARRIVAL 15:07:06

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 15:10:22
SCHEDULED ARRIVAL 15:08:26

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 15:11:19
SCHEDULED ARRIVAL 15:11:11

ARRIVAL VEH A STA S AT 15:11:33
SCHEDULED ARRIVAL 15:11:19

ARRIVAL VEH B STA C AT 15:12:16
SCHEDULED ARRIVAL 15:11:58

ARRIVAL VEH A STA N AT 15:13:01
SCHEDULED ARRIVAL 15:12:29

ARRIVAL VEH B STA S AT 15:13:44
SCHEDULED ARRIVAL 15:12:47

ARRIVAL VEH A STA C AT 15:14:13
SCHEDULED ARRIVAL 15:13:16

ARRIVAL VEH B STA N AT 15:15:06
SCHEDULED ARRIVAL 15:13:57

ARRIVAL VEH A STA S AT 15:15:20
SCHEDULED ARRIVAL 15:14:05

ARRIVAL VEH B STA C AT 15:16:02
SCHEDULED ARRIVAL 15:14:44

ARRIVAL VEH A STA S AT 15:15:20
SCHEDULED ARRIVAL 15:14:05

ARRIVAL VEH B STA C AT 15:16:02
SCHEDULED ARRIVAL 15:14:44

ARRIVAL VEH A STA N AT 15:16:48
SCHEDULED ARRIVAL 15:15:16

ARRIVAL VEH B STA S AT 15:17:31
SCHEDULED ARRIVAL 15:15:33

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 15:18:00
SCHEDULED ARRIVAL 15:16:02

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 15:18:54
SCHEDULED ARRIVAL 15:18:51

ARRIVAL VEH A STA S AT 15:19:07
SCHEDULED ARRIVAL 15:18:57

ARRIVAL VEH B STA C AT 15:19:49
SCHEDULED ARRIVAL 15:19:38

ARRIVAL VEH A STA N AT 15:20:36
SCHEDULED ARRIVAL 15:20:08

ARRIVAL VEH B STA S AT 15:21:19
SCHEDULED ARRIVAL 15:20:26

ARRIVAL VEH A STA C AT 15:21:48
SCHEDULED ARRIVAL 15:20:55

ARRIVAL VEH B STA N AT 15:22:41
SCHEDULED ARRIVAL 15:21:37

ARRIVAL VEH A STA S AT 15:22:55
SCHEDULED ARRIVAL 15:21:44

ARRIVAL VEH B STA C AT 15:23:37
SCHEDULED ARRIVAL 15:22:24

ARRIVAL VEH A STA N AT 15:24:21
SCHEDULED ARRIVAL 15:22:54

ARRIVAL VEH B STA S AT 15:25:03
SCHEDULED ARRIVAL 15:23:12

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 15:25:34
SCHEDULED ARRIVAL 15:23:41

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 15:26:08
SCHEDULED ARRIVAL 15:26:23

SCHEDULED ARRIVAL 15:23:41

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 15:26:08
SCHEDULED ARRIVAL 15:26:23

ARRIVAL VEH A STA S AT 15:26:55
SCHEDULED ARRIVAL 15:26:33

ARRIVAL VEH B STA C AT 15:27:22
SCHEDULED ARRIVAL 15:27:12

ARRIVAL VEH A STA N AT 15:28:20
SCHEDULED ARRIVAL 15:27:43

ARRIVAL VEH B STA S AT 15:30:38
SCHEDULED ARRIVAL 15:27:59

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 15:31:07
SCHEDULED ARRIVAL 15:28:28

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 15:32:00
SCHEDULED ARRIVAL 15:31:57

ARRIVAL VEH A STA S AT 15:32:15
SCHEDULED ARRIVAL 15:32:05

ARRIVAL VEH B STA C AT 15:32:57
SCHEDULED ARRIVAL 15:32:45

ARRIVAL VEH A STA N AT 15:33:42
SCHEDULED ARRIVAL 15:33:16

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 15:39:43
SCHEDULED ARRIVAL 15:40:00
T=15:43:45
TIME 15:43:45

ARRIVAL VEH A STA C AT 15:43:47
SCHEDULED ARRIVAL 15:37:13

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 15:45:59
SCHEDULED ARRIVAL 15:44:17

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 15:46:13
SCHEDULED ARRIVAL 15:44:44

ARRIVAL VEH B STA C AT 15:46:55
SCHEDULED ARRIVAL 15:46:51

ARRIVAL VEH A STA N AT 15:47:41
SCHEDULED ARRIVAL 15:45:55

STA C AT 15:46:55
VAL 15:46:51

STA N AT 15:47:41
VAL 15:45:55

ADJUSTED FOR VEHICLE A

STA S AT 15:48:23
VAL 15:47:41

STA C AT 15:48:54
VAL 15:48:30

STA N AT 15:49:28
VAL 15:48:52

STA S AT 15:50:16
VAL 15:49:18

STA C AT 15:50:42
VAL 15:49:39

STA S AT 15:51:51
VAL 15:50:28

STA N AT 15:51:55
VAL 15:50:29

STA C AT 15:52:50
VAL 15:51:16

STA N AT 15:53:00
VAL 15:51:38

STA S AT 15:53:52
VAL 15:52:05

ADJUSTED FOR VEHICLE A

STA C AT 15:54:19
VAL 15:52:25

ADJUSTED FOR VEHICLE B

STA N AT 15:55:18
VAL 15:55:10

STA S AT 15:56:01
VAL 15:55:17

STA C AT 15:56:31
VAL 15:55:57

STA N AT 15:57:06
VAL 15:56:28

STA S AT 15:57:54
VAL 15:56:46

STA C AT 15:58:20
VAL 15:57:15

IVAL VEH A STA S AT 15:57:54
SCHEDULED ARRIVAL 15:56:46

IVAL VEH B STA C AT 15:58:20
SCHEDULED ARRIVAL 15:57:15

ARRIVAL VEH B STA S AT 16:00:44
SCHEDULED ARRIVAL 15:58:03

SCHEDULE RE-ADJUSTED FOR VEHICLE B

VEH A IN SECTION 6 MORE THAN 30 SECONDS

ARRIVAL VEH A STA N AT 16:02:01
SCHEDULED ARRIVAL 15:57:53

SCHEDULE RE-ADJUSTED FOR VEHICLE A

VEH A IN SECTION 7 MORE THAN 30 SECONDS

VEH A IN SECTION 6 MORE THAN 30 SECONDS

VEH B IN SECTION 9 MORE THAN 30 SECONDS

TRANSPO® '72 COMPUTER SYSTEM START UP

RESTRICTIONS?
EW CONFIGURATION? Y
CONFIGURATION CHANGE
MODE (D,S): S
ENTHRU(FOR A,B,E,F,G,P,Q ONLY!)?
CONFIGURATION (A-V): A
VEHICLE(S) (A,B,2): 2
ACCEPTED
CONFIGURATION MODE OPERATING VEHICLE
A S A,B

OK? Y
READY

ELECTRIFY? Y
MAIN ELECTRIFICATION

READY

VEH A IN SECTION 0 MORE THAN 30 SECONDS

VEH A IN SECTION 0 MORE THAN 30 SECONDS

VEH A IN SECTION 0 MORE THAN 30 SECONDS

VEH A IMPROPER BERTHING AT STATION C - OVERSHOOT

VEH A IMPROPER BERTHING AT STATION C - OVERSHOOT

IVAL VEH A STA C AT 16:10:41
SCHEDULED ARRIVAL 16:06:24

SCHEDULE RE-ADJUSTED FOR VEHICLE A

IVAL VEH B STA N AT 16:11:01

VEH A IN SECTION 0 MORE THAN 30 SECONDS

VEH A IN SECTION 0 MORE THAN 30 SECONDS

VEH A IN SECTION 0 MORE THAN 30 SECONDS

VEH A IMPROPER BERTHING AT STATION C - OVERSHOOT

VEH A IMPROPER BERTHING AT STATION C - OVERSHOOT

ARRIVAL VEH A STA C AT 16:10:41

SCHEDULED ARRIVAL 16:06:24

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 16:11:01

SCHEDULED ARRIVAL 16:07:25

SCHEDULE RE-ADJUSTED FOR VEHICLE B

71
STOPPED AT
16:24

MONOCAB SITE TEST
July 25, 1972

Time

1:58	Guideway power on.
2:10	Both vehicles running auto.
2:15	Both vehicles stopped.
2:20	Both vehicles running auto.
2:45	Both vehicles running in manual.
2:48	Both vehicles stopped.
3:00	Both vehicles running auto.
3:17	Both vehicles stopped.
3:19	Both vehicles running in manual.
3:21	Both vehicles stopped.
3:22	Both vehicles running in auto.
3:40	Both vehicles stopped.
3:55	Both vehicles running auto.
4:05	Both vehicles stopped.

TTI SITE TEST
August 2, 1972

Time

1400	Start two vehicles full automatic.
1603	Shut down two vehicles full automatic.



DULLES SYSTEM



INATOR _____

O.D. READING _____ MILES

CLE RACHEL

HOUR METER READING _____ HOURS

8-2-72

or Subject: _____

anations:

stop in Sta A move to switch area)
Begin 8th cycle on Rachel

158	"	87 "	"	"	"
2100	"	88 th	"	"	"
202	"	89 "	"	"	"
204	"	90 "	"	"	"
206	"	91 "	"	"	"
209	"	92 "	"	"	"
211	"	93 "	"	"	"
214	"	94 "	"	"	"
217	"	95 "	"	"	"
220	"	96 "	"	"	"
222	"	97 "	"	"	"
225	"	98 "	"	"	"
228	"	99 "	"	"	"
230	"	100 "	"	"	"
232	"	101 "	"	"	"
235	"	102 "	"	"	"
243	"	103 "	"	"	"
245	"	104 "	"	"	"
247	"	105 "	"	"	"
249	"	106 "	"	"	"
252	"	107 "	"	"	"
255	"	108 "	"	"	"
257	"	109 "	"	"	"
259	"	110 "	"	"	"
301	"	111 "	"	"	"
304	"	112 "	"	"	"
307	"	113 "	"	"	"
314	"	114 "	"	"	"
313	"	115 "	"	"	"
315	"	116 "	"	"	"
316	<i>Rachael stopped on guidance man at Sta B</i>				
	<i>Restart at 3:17 Back in Sta A at 3:19</i>				
3:20	<i>Begin</i>	<i>117th cycle on</i>	<i>Rachael</i>		
3:22	"	118 "	"	"	"
3:25	"	119 "	"	"	"
3:27	"	120 "	"	"	"
3:30	"	121 "	"	"	"

Form STS 5



DULLES SYSTEM



ORIGINATOR _____

O.D. READING _____ MILES

VEHICLE _____

HOUR METER READING _____ HOURS

DATE 8-2-72

Item or Subject: _____

Explanations:

3:31 Begin 122nd cycle on Rackael
3:34 " 123 " " " "
3:36 " 124 " " " "
3:38 Stopped at Sta B Reading South
Restarted for Sta B in Sta A at 3:39
3:40 Begin 125th cycle on Rackael
3:42 " 126 " " " "
3:44 " 127 " " " "
3:46 " 128 " " " "
3:48 Shut down for evaluation by NSL group

Form STS 5

DASHAVEYOR TEST SITE
August 2, 1972

Time

1515	Start two vehicles running intermittently by remote manual control.
1615	Shut down two vehicles.

MONOCAB SITE TEST
August 2, 1972

Time

2:00	Both vehicles running manually.
3:40	One vehicle stopped, one vehicle running.
3:42	Both vehicles stopped.
3:45	Guideway power turned off.
3:52	Guideway power turned on.
3:55	Both vehicles running manually.
4:10	Both vehicles stopped.
+3 Min.	
-	
4:13	Guideway power turned off.
±3 Min.	

TTI SITE TEST
July 31, 1972

Time

1400	Start two vehicles full automatic.
1633	Shut down two vehicles full automatic.



DULLES SYSTEM

NATOR W. Sommers & JLB

O.D. READING _____ MILES

LE Shirley & Rachel

HOUR METER READING _____ HOURS

7-31-72

STOPS WERE MADE AT A+E as of time between 6A + 9A

or Subject: _____

Activity Record for EMI test

nations:

Shirley in B Rachel in A1.45 Begin 1st cycle2.05 Power was off2.45 Rachel in one vehicle made FA + E + A2.16 Begin 2nd cycle2.18 " 3rd cycle2.20 Tripped power2.21 Power back on2.22 Begin 4th cycle2.23 Tripped Power2.24 Power back on2.25 Begin 5th cycle2.27 " 6 " "2.30 " 7 " "2.32 Tripped Power2.33 Power back on2.34 Begin 8th cycle at 9 MPH Down + Back 3-9 sec ^{STOPS FROM A-E}2.38 " 9th " " " " " " "2.42 " 10th " " " " " " "2.46 " 11th " " " " " " "2.50 " 12th " " " " " " "2.54 " 13th " " " " " " "2.58 " 14th " " " " " " "2.59 " 15th " " " " " " "

Form STS 5



DULLES SYSTEM



MOTOR _____

O.D. READING _____ MILES

LE _____

HOUR METER READING _____ HOURS

7-31-72

or Subject: _____

nations:

300	Begin	20th	cycle	at	9 mph	Down + Back		
311	"	21th	"	"	"	"	"	"
313	"	22th	"	"	"	"	"	"
316	"	23	"	"	"	"	"	"
319	"	24th	"	"	"	"	"	"
322	"	25th	"	"	"	"	"	"
325	"	26th	"	"	"	"	"	"
329	"	27th	"	"	"	"	"	"
332	"	28th	"	"	"	"	"	"
334	"	29th	"	"	"	"	"	"
334	Power on	Shirley	For	cycle	Run			
336	Power off	on Shirley	at	station	B			
36	Cont	30th	cycle	on	Rachel	at	9 mph	A + E
39	"	31	"	"	"	"	"	"
42	"	33th	"	"	"	"	"	"
46	"	34th	"	"	"	"	"	"
50	"	35th	"	"	"	"	"	"
54	"	36th	"	"	"	"	"	"
57	"	37th	"	"	"	"	"	"
60	Power	on	station	lane	For Shirley	For	cycle	Run
61	"	OFF	"	"	"	"	"	"
72	Cont	35th	cycle	on	Rachel	at	9 mph	A + E
75	"	39th	"	"	"	"	"	"
78	"	40th	"	"	"	"	"	"
80	"	41th	"	"	"	"	"	"
82	"	42th	"	"	"	"	"	"
85	"	"	"	"	"	"	"	"

Form STS 5

Dashavey

July 31, 1972

~~2:00~~ PM
15:00

ERROR TRAP AT LOC 763536

TRANSPO[®] '72 COMPUTER SYSTEM START UP

RESTRICTIONS?

NEW CONFIGURATION? Y

CONFIGURATION CHANGE

MODE (D,S): S

RUNTHRU(FOR A,B,E,F,G,P,Q ONLY!)?

CONFIGURATION (A-V): A

VEHICLE(S) (A,B,2): 2

ACCEPTED

CONFIGURATION	MODE	OPERATING VEHICLE
A	S	A,B

OK? Y

READY

ELECTRIFY? Y

BEGIN ELECTRIFICATION

READY

CLASS 2 FAILURE - VEHICLE B

VEHICLE A EMERGENCY STOP AT STATION S

ARRIVAL VEH B STA C AT 00:02:56

SCHEDULED ARRIVAL 00:02:36

CLASS 2 FAILURE - VEHICLE A

VEH A IMPROPER BERTHING AT STATION N - UNDERSHOOT

ARRIVAL VEH A STA N AT 00:03:34

SCHEDULED ARRIVAL 00:03:37

VEHICLE B EMERGENCY STOP AT STATION S

ARRIVAL VEH B STA S AT 00:04:21

SCHEDULED ARRIVAL 00:03:24

ARRIVAL VEH A STA C AT 00:04:47

SCHEDULED ARRIVAL 00:04:26

ARRIVAL VEH A STA S AT 00:05:49

SCHEDULED ARRIVAL 00:05:15

E-25

ARRIVAL VEH A STA C AT 00:04:47
SCHEDULED ARRIVAL 00:04:26

ARRIVAL VEH A STA S AT 00:05:49
SCHEDULED ARRIVAL 00:05:15

ARRIVAL VEH B STA N AT 00:05:56
SCHEDULED ARRIVAL 00:04:35

ARRIVAL VEH B STA C AT 00:06:36
SCHEDULED ARRIVAL 00:05:22

ARRIVAL VEH A STA N AT 00:07:13
SCHEDULED ARRIVAL 00:06:25

ARRIVAL VEH B STA S AT 00:07:55
SCHEDULED ARRIVAL 00:06:11

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 00:08:34
SCHEDULED ARRIVAL 00:07:12

ARRIVAL VEH B STA N AT 00:09:10
SCHEDULED ARRIVAL 00:09:13

ARRIVAL VEH A STA S AT 00:09:52
SCHEDULED ARRIVAL 00:08:01

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 00:10:17
SCHEDULED ARRIVAL 00:10:02

ARRIVAL VEH B STA S AT 00:11:15
SCHEDULED ARRIVAL 00:10:51

ARRIVAL VEH A STA N AT 00:11:28
SCHEDULED ARRIVAL 00:11:12

ARRIVAL VEH A STA C AT 00:12:32
SCHEDULED ARRIVAL 00:11:59

ARRIVAL VEH B STA N AT 00:12:57
SCHEDULED ARRIVAL 00:12:02

ARRIVAL VEH A STA S AT 00:13:39
SCHEDULED ARRIVAL 00:12:48

ARRIVAL VEH B STA C AT 00:14:07
SCHEDULED ARRIVAL 00:12:48

ARRIVAL VEH B STA S AT 00:15:04
SCHEDULED ARRIVAL 00:13:37

VEH A IMPROPER BERTHING AT STATION N - UNDERSHOOT

ARRIVAL VEH A STA N AT 00:15:44
SCHEDULED ARRIVAL 00:13:58

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 00:16:47
SCHEDULED ARRIVAL 00:16:34

ARRIVAL VEH B STA N AT 00:16:59

SCHEDULE RE-ADJUSTED FOR VEHICLE A
ARRIVAL VEH A STA C AT 00:16:47
SCHEDULED ARRIVAL 00:16:34

ARRIVAL VEH B STA N AT 00:16:59
SCHEDULED ARRIVAL 00:14:48

SCHEDULE RE-ADJUSTED FOR VEHICLE B

CLASS 3 FAILURE - VEHICLE B

ARRIVAL VEH A STA S AT 00:17:57
SCHEDULED ARRIVAL 00:17:23

ARRIVAL VEH B STA C AT 00:18:22
SCHEDULED ARRIVAL 00:17:47

ARRIVAL VEH B STA S AT 00:19:20
SCHEDULED ARRIVAL 00:18:36

ARRIVAL VEH A STA N AT 00:19:31
SCHEDULED ARRIVAL 00:18:33

CLASS 3 FAILURE - VEHICLE A

ARRIVAL VEH A STA C AT 00:20:19
SCHEDULED ARRIVAL 00:19:20

VEH B IMPROPER BERTHING AT STATION N - UNDERSHOOT

ARRIVAL VEH B STA N AT 00:21:52
SCHEDULED ARRIVAL 00:19:46

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 00:22:34
SCHEDULED ARRIVAL 00:20:08

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 00:23:13
SCHEDULED ARRIVAL 00:22:40

ARRIVAL VEH A STA N AT 00:24:25
SCHEDULED ARRIVAL 00:23:54

ARRIVAL VEH B STA S AT 00:26:21
SCHEDULED ARRIVAL 00:23:27

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 00:26:47
SCHEDULED ARRIVAL 00:24:40

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA S AT 00:27:49
SCHEDULED ARRIVAL 00:27:44

VEH B IMPROPER BERTHING AT STATION N - UNDERSHOOT

ARRIVAL VEH B STA N AT 00:28:21
SCHEDULED ARRIVAL 00:27:41

ARRIVAL VEH B STA C AT 00:29:06

ARRIVAL VEH B STA N AT 00:28:21
SCHEDULED ARRIVAL 00:27:41

7/31

ARRIVAL VEH B STA C AT 00:29:06
SCHEDULED ARRIVAL 00:28:28

VEH A IMPROPER BERTHING AT STATION N - UNDERSHOOT

ARRIVAL VEH A STA N AT 00:29:59
SCHEDULED ARRIVAL 00:28:55

ARRIVAL VEH B STA S AT 00:31:11
SCHEDULED ARRIVAL 00:29:16

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 00:31:37
SCHEDULED ARRIVAL 00:29:41

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA S AT 00:32:39
SCHEDULED ARRIVAL 00:32:34

VEH B IMPROPER BERTHING AT STATION N - UNDERSHOOT

ARRIVAL VEH B STA N AT 00:33:07
SCHEDULED ARRIVAL 00:32:31

ARRIVAL VEH B STA C AT 00:33:46
SCHEDULED ARRIVAL 00:33:19

ARRIVAL VEH A STA N AT 00:34:17
SCHEDULED ARRIVAL 00:33:45

VEH B IMPROPER BERTHING AT STATION S - UNDERSHOOT

ARRIVAL VEH B STA S AT 00:35:26
SCHEDULED ARRIVAL 00:34:07

ARRIVAL VEH A STA C AT 00:35:39
SCHEDULED ARRIVAL 00:34:32

ARRIVAL VEH A STA S AT 00:36:40
SCHEDULED ARRIVAL 00:35:21

VEH B IMPROPER BERTHING AT STATION N - UNDERSHOOT

ARRIVAL VEH B STA N AT 00:37:09
SCHEDULED ARRIVAL 00:35:17

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA C AT 00:37:53
SCHEDULED ARRIVAL 00:37:59

VEH A IMPROPER BERTHING AT STATION N - UNDERSHOOT

ARRIVAL VEH A STA N AT 00:38:42
SCHEDULED ARRIVAL 00:36:31

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA S AT 00:39:24

SCHEDULED ARRIVAL 00:36:31

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA S AT 00:39:24
SCHEDULED ARRIVAL 00:38:55

ARRIVAL VEH A STA C AT 00:39:50
SCHEDULED ARRIVAL 00:39:31

ARRIVAL VEH A STA S AT 00:40:52
SCHEDULED ARRIVAL 00:40:20

ARRIVAL VEH B STA N AT 00:41:01
SCHEDULED ARRIVAL 00:40:05

ARRIVAL VEH B STA C AT 00:41:49
SCHEDULED ARRIVAL 00:40:53

ARRIVAL VEH A STA N AT 00:42:19
SCHEDULED ARRIVAL 00:41:30

ARRIVAL VEH B STA S AT 00:43:01
SCHEDULED ARRIVAL 00:41:41

ARRIVAL VEH A STA C AT 00:43:26
SCHEDULED ARRIVAL 00:42:17

ARRIVAL VEH A STA S AT 00:44:27
SCHEDULED ARRIVAL 00:43:06

ARRIVAL VEH B STA N AT 00:44:37
SCHEDULED ARRIVAL 00:42:52

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA C AT 00:45:25
SCHEDULED ARRIVAL 00:45:26

VEH A IMPROPER BERTHING AT STATION N - UNDERSHOOT

ARRIVAL VEH A STA N AT 00:46:05
SCHEDULED ARRIVAL 00:44:16

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA S AT 00:46:53
SCHEDULED ARRIVAL 00:46:22

ARRIVAL VEH A STA C AT 00:47:19
SCHEDULED ARRIVAL 00:46:54

ARRIVAL VEH A STA S AT 00:48:19
SCHEDULED ARRIVAL 00:47:43

ARRIVAL VEH B STA N AT 00:48:29
SCHEDULED ARRIVAL 00:47:32

ARRIVAL VEH B STA C AT 00:50:07
SCHEDULED ARRIVAL 00:48:18

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 00:50:54
SCHEDULED ARRIVAL 00:48:53

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 00:50:54
SCHEDULED ARRIVAL 00:48:53

7/31

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA S AT 00:51:35
SCHEDULED ARRIVAL 00:51:06

ARRIVAL VEH A STA C AT 00:52:08
SCHEDULED ARRIVAL 00:51:42

ARRIVAL VEH B STA N AT 00:52:52
SCHEDULED ARRIVAL 00:52:17

ARRIVAL VEH A STA S AT 00:53:34
SCHEDULED ARRIVAL 00:52:31

ARRIVAL VEH B STA C AT 00:54:05
SCHEDULED ARRIVAL 00:53:03

VEH B IN SECTION 4 MORE THAN 30 SECONDS

VEH B IMPROPER BERTHING AT STATION S - OVERSHOOT

ARRIVAL VEH B STA S AT 00:55:23
SCHEDULED ARRIVAL 00:53:52

ARRIVAL VEH A STA N AT 00:55:37
SCHEDULED ARRIVAL 00:53:41

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 00:56:17
SCHEDULED ARRIVAL 00:56:26

VEH B IMPROPER BERTHING AT STATION N - UNDERSHOOT

ARRIVAL VEH B STA N AT 00:57:08
SCHEDULED ARRIVAL 00:55:02

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 00:57:50
SCHEDULED ARRIVAL 00:57:23

ARRIVAL VEH B STA C AT 00:58:14
SCHEDULED ARRIVAL 00:57:57

ARRIVAL VEH B STA S AT 00:59:11
SCHEDULED ARRIVAL 00:58:46

15:12 Time
finished

2 veh
loop open

July 31, 1972

MONOCAB SITE TEST
July 31, 1972

Time

2:00	Both vehicles running manually.
2:45	Both vehicles stopped.
2:47	Both vehicles running manually.
4:00	Both vehicles stopped.
4:10	Both vehicles running manually.
4:50	Both vehicles stopped.

TTI SITE TEST
July 27, 1972

Time

13:47 Two vehicles full automatic.
16:25 Stopped two vehicles full automatic.

NATOR E. M. Paddock

O.D. READING _____ MILES

ME Shirley & Rachel

HOUR METER READING _____ HOURS

7-27-72or Subject: Activity for EMI tests

Vehicle mode speed - A → E @ 9 mph E → A @ 12 mph

Locations:

2:00:10 - Power up on single lane - Shirley on A - ready to run single vehicle mode

2:04:20 - Begin 1st run

2:08:05 - Begin 2nd " ^{noisy} - this was a good run, everything longer in the air

2:10:43 - Begin 3rd cycle - a long relative stop due to passengers boarding

2:13:08 - 4th cycle - 4th cycle - 40 feet and stops - 2:

2:14:06 - Fuses pulled (power off)

2:16:10 - Fuses in - power on

2:17:40 - Fuses out - power off

2:19:08 - Fuses in - power on and vehicle moved on

2:19:22 - Begin 4th cycle again

2:22:40 - " 5th "

2:25:47 - " 6th "

2:28:30 - " 7th "

2:30:31 - " 8th cycle

2:32:53 - " 9th cycle

2:35:10 - Vehicle Back at A (load Japanese visitors)

2:38:17 - Begin 10th cycle

2:40:28 - " 11th "

2:42:50 - Vehicle Back at A (unload visitors)

2:43:30 - Begin 12th cycle

2:46:15 - " 13th "

2:48:42 - " 14th "

2:51:47 - " 15th "

2:54:15 - Station lane power on - ready

2:55:40 - Begin dual vehicle mode - vehicles go soft and stop

2:56:49 - Fuses out

3:01:18 - Fuses in - power on - more vehicles back into station

3:07:10 - 1st dual vehicle cycle

3:15:15 - 2nd dual vehicle cycle

3:16:44 - 3rd dual vehicle cycle

3:20:43 - " 4th cycle

3:22:25 - Power down on main lane (speed trap)

3:23:28 - Pull fuses on both lanes

3:24:34 - Fuses in - vehicle on main lane moves into A

Form STS 5

Dashway or
July 27, 72

R
ILLEGAL COMMAND

READY

R
TRANSPO® '72 COMPUTER SYSTEM START UP

RESTRICTIONS?
NEW CONFIGURATION? Y
CONFIGURATION CHANGE
MODE (D,S): S
RUNTHRU(FOR A,B,E,F,G,P,Q ONLY!)?
CONFIGURATION (A-V): A
VEHICLE(S) (A,B,2): 2
ACCEPTED
CONFIGURATION MODE OPERATING VEHICLE
 A S A,B

OK? Y
READY

ELECTRIFY? Y
BEGIN ELECTRIFICATION

READY

ARRIVAL VEH B STA S AT 14:03:19
SCHEDULED ARRIVAL 14:02:55

ARRIVAL VEH A STA C AT 14:03:45
SCHEDULED ARRIVAL 14:02:45

ARRIVAL VEH B STA N AT 14:03:05
SCHEDULED ARRIVAL 14:04:02

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 14:08:12
SCHEDULED ARRIVAL 14:03:30

SCHEDULE RE-ADJUSTED FOR VEHICLE A

VEH B IN SECTION 2 MORE THAN 30 SECONDS

VEH A IN SECTION 9 MORE THAN 30 SECONDS

ARRIVAL VEH B STA C AT 14:11:05
SCHEDULED ARRIVAL 14:08:54

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 14:11:15
SCHEDULED ARRIVAL 14:09:31

SCHEDULE RE-ADJUSTED FOR VEHICLE A

E-34

ARRIVAL VEH B STA S AT 14:12:02
SCHEDULED ARRIVAL 14:12:04

SCHEDULED ARRIVAL 14:09:31

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA S AT 14:12:02
SCHEDULED ARRIVAL 14:12:04

ARRIVAL VEH A STA C AT 14:12:27
SCHEDULED ARRIVAL 14:12:04

ARRIVAL VEH B STA N AT 14:13:44
SCHEDULED ARRIVAL 14:13:23

ARRIVAL VEH A STA S AT 14:13:51
SCHEDULED ARRIVAL 14:12:53

ARRIVAL VEH B STA C AT 14:14:39
SCHEDULED ARRIVAL 14:14:10

ARRIVAL VEH A STA N AT 14:16:01
SCHEDULED ARRIVAL 14:14:02

ARRIVAL VEH B STA S AT 14:16:02
SCHEDULED ARRIVAL 14:14:58

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 14:16:53
SCHEDULED ARRIVAL 14:16:53

ARRIVAL VEH B STA N AT 14:17:36
SCHEDULED ARRIVAL 14:16:09

ARRIVAL VEH A STA S AT 14:19:18
SCHEDULED ARRIVAL 14:17:46

ARRIVAL VEH B STA C AT 14:19:45
SCHEDULED ARRIVAL 14:16:55

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 14:21:58
SCHEDULED ARRIVAL 14:18:56

ARRIVAL VEH B STA S AT 14:21:58
SCHEDULED ARRIVAL 14:20:41

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 14:22:49
SCHEDULED ARRIVAL 14:22:50

ARRIVAL VEH B STA N AT 14:23:32
SCHEDULED ARRIVAL 14:21:51

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 14:24:20
SCHEDULED ARRIVAL 14:23:45

VEH B IN SECTION 2 MORE THAN 30 SECONDS

E-35

ARRIVAL VEH B STA C AT 14:25:30
SCHEDULED ARRIVAL 14:24:20

ARRIVAL VEH A STA N AT 14:26:33

VEH B IN SECTION 2 MORE THAN 30 SECONDS

ARRIVAL VEH B STA C AT 14:25:30
SCHEDULED ARRIVAL 14:24:20

ARRIVAL VEH A STA N AT 14:26:33
SCHEDULED ARRIVAL 14:24:55

ARRIVAL VEH B STA S AT 14:26:34
SCHEDULED ARRIVAL 14:25:09

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 14:27:25
SCHEDULED ARRIVAL 14:27:24

ARRIVAL VEH B STA N AT 14:28:07
SCHEDULED ARRIVAL 14:26:19

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 14:29:18
SCHEDULED ARRIVAL 14:28:17

ARRIVAL VEH B STA C AT 14:29:49
SCHEDULED ARRIVAL 14:28:56

ARRIVAL VEH B STA S AT 14:32:02
SCHEDULED ARRIVAL 14:29:43

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 14:32:16
SCHEDULED ARRIVAL 14:29:26

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 14:33:26
SCHEDULED ARRIVAL 14:33:05

ARRIVAL VEH B STA N AT 14:33:50
SCHEDULED ARRIVAL 14:33:23

ARRIVAL VEH A STA S AT 14:34:32
SCHEDULED ARRIVAL 14:33:54

ARRIVAL VEH B STA C AT 14:35:25
SCHEDULED ARRIVAL 14:34:09

ARRIVAL VEH A STA N AT 14:36:15
SCHEDULED ARRIVAL 14:35:04

ARRIVAL VEH B STA S AT 14:36:57
SCHEDULED ARRIVAL 14:34:58

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 14:37:22
SCHEDULED ARRIVAL 14:35:51

ARRIVAL VEH B STA N AT 14:39:32
SCHEDULED ARRIVAL 14:38:16

ARRIVAL VEH A STA S AT 14:39:38
SCHEDULED ARRIVAL 14:36:39

ARRIVAL VEH B STA N AT 14:39:32
SCHEDULED ARRIVAL 14:38:16

ARRIVAL VEH A STA S AT 14:39:38
SCHEDULED ARRIVAL 14:36:39

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 14:40:54
SCHEDULED ARRIVAL 14:39:03

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 14:41:13
SCHEDULED ARRIVAL 14:40:58

ARRIVAL VEH B STA S AT 14:41:54
SCHEDULED ARRIVAL 14:41:53

ARRIVAL VEH A STA C AT 14:42:19
SCHEDULED ARRIVAL 14:41:45

ARRIVAL VEH B STA N AT 14:43:50
SCHEDULED ARRIVAL 14:43:10

ARRIVAL VEH A STA S AT 14:43:56
SCHEDULED ARRIVAL 14:42:34

ARRIVAL VEH B STA C AT 14:44:59
SCHEDULED ARRIVAL 14:43:57

ARRIVAL VEH A STA N AT 14:45:18
SCHEDULED ARRIVAL 14:43:44

ARRIVAL VEH B STA S AT 14:45:59
SCHEDULED ARRIVAL 14:44:46

ARRIVAL VEH A STA C AT 14:46:24
SCHEDULED ARRIVAL 14:44:31

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 14:48:12
SCHEDULED ARRIVAL 14:45:55

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 14:48:19
SCHEDULED ARRIVAL 14:47:22

ARRIVAL VEH B STA C AT 14:49:39
SCHEDULED ARRIVAL 14:49:03

ARRIVAL VEH A STA N AT 14:50:28
SCHEDULED ARRIVAL 14:48:32

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA S AT 14:50:38
SCHEDULED ARRIVAL 14:49:52

ARRIVAL VEH A STA C AT 14:51:19
SCHEDULED ARRIVAL 14:51:19

ARRIVAL VEH B STA N AT 14:53:40

ARRIVAL VEH A STA C AT 14:51:19
SCHEDULED ARRIVAL 14:51:19

ARRIVAL VEH B STA N AT 14:53:40
SCHEDULED ARRIVAL 14:51:01

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 14:53:46
SCHEDULED ARRIVAL 14:52:13

ARRIVAL VEH B STA C AT 14:54:51
SCHEDULED ARRIVAL 14:54:31

ARRIVAL VEH A STA N AT 14:55:10
SCHEDULED ARRIVAL 14:53:23

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA S AT 14:55:52
SCHEDULED ARRIVAL 14:55:20

ARRIVAL VEH A STA C AT 14:56:17
SCHEDULED ARRIVAL 14:55:59

ARRIVAL VEH B STA N AT 14:57:39
SCHEDULED ARRIVAL 14:56:30

ARRIVAL VEH A STA S AT 14:57:45
SCHEDULED ARRIVAL 14:56:48

ARRIVAL VEH B STA C AT 14:59:37
SCHEDULED ARRIVAL 14:57:16

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 14:59:56
SCHEDULED ARRIVAL 14:57:58

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA S AT 15:00:57
SCHEDULED ARRIVAL 15:00:36

ARRIVAL VEH A STA C AT 15:01:23
SCHEDULED ARRIVAL 15:00:44

ARRIVAL VEH B STA N AT 15:02:07
SCHEDULED ARRIVAL 15:01:46

ARRIVAL VEH A STA S AT 15:02:48
SCHEDULED ARRIVAL 15:01:33

ARRIVAL VEH B STA C AT 15:03:15
SCHEDULED ARRIVAL 15:02:33

ARRIVAL VEH B STA S AT 15:04:46
SCHEDULED ARRIVAL 15:03:22

ARRIVAL VEH A STA N AT 15:04:50
SCHEDULED ARRIVAL 15:02:43

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 15:05:01

ARRIVAL VEH A STA N AT 15:04:50
SCHEDULED ARRIVAL 15:02:43

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 15:05:41
SCHEDULED ARRIVAL 15:05:41

VEH B IN SECTION / MORE THAN 30 SECONDS

VEH B IN SECTION / MORE THAN 30 SECONDS

VEH B IN SECTION 5 MORE THAN 30 SECONDS

ARRIVAL VEH A STA S AT 15:11:56
SCHEDULED ARRIVAL 15:06:33

SCHEDULE RE-ADJUSTED FOR VEHICLE A

VEH B IMPROPER BERTHING AT STATION N - UNDERSHOOT

ARRIVAL VEH B STA N AT 15:12:36
SCHEDULED ARRIVAL 15:04:26

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA C AT 15:13:21
SCHEDULED ARRIVAL 15:13:25

ARRIVAL VEH A STA N AT 15:13:41
SCHEDULED ARRIVAL 15:13:16

ARRIVAL VEH B STA S AT 15:14:51
SCHEDULED ARRIVAL 15:14:14

ARRIVAL VEH A STA C AT 15:15:17
SCHEDULED ARRIVAL 15:14:02

ARRIVAL VEH B STA N AT 15:17:29
SCHEDULED ARRIVAL 15:15:23

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 15:17:35
SCHEDULED ARRIVAL 15:14:50

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 15:18:22
SCHEDULED ARRIVAL 15:18:20

ARRIVAL VEH A STA N AT 15:19:11
SCHEDULED ARRIVAL 15:18:53

ARRIVAL VEH B STA S AT 15:19:50
SCHEDULED ARRIVAL 15:19:13

ARRIVAL VEH A STA C AT 15:20:16
SCHEDULED ARRIVAL 15:19:40

ARRIVAL VEH B STA N AT 15:21:31
SCHEDULED ARRIVAL 15:20:23

ARRIVAL VEH A STA S AT 15:21:36
SCHEDULED ARRIVAL 15:20:29

ARRIVAL VEH B STA D AT 15:21:31
SCHEDULED ARRIVAL 15:20:23

ARRIVAL VEH A STA S AT 15:21:36
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SCHEDULE RE-ADJUSTED FOR VEHICLE B

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SCHEDULED ARRIVAL 15:26:45

ARRIVAL VEH A STA C AT 15:28:23
SCHEDULED ARRIVAL 15:27:12

ARRIVAL VEH B STA N AT 15:30:16
SCHEDULED ARRIVAL 15:27:54

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 15:30:21
SCHEDULED ARRIVAL 15:28:00

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 15:31:11
SCHEDULED ARRIVAL 15:31:07

ARRIVAL VEH A STA N AT 15:32:00
SCHEDULED ARRIVAL 15:31:39

ARRIVAL VEH B STA S AT 15:32:40
SCHEDULED ARRIVAL 15:31:58

ARRIVAL VEH A STA C AT 15:33:05
SCHEDULED ARRIVAL 15:32:26

ARRIVAL VEH B STA N AT 15:34:30
SCHEDULED ARRIVAL 15:33:08

MONOCAB SITE TEST
July 27, 1972

Time

2:05	Both vehicles running automatic.
2:18	Both vehicles stopped.
2:23	Both vehicles running automatic.
3:30	Both vehicles stopped.

HE 18.5 .A37
no. DOT-TSC-
UMTA-73-15

x.12

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